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PRINCIPLES AND METHODS
OF
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TORONTO

PRINCIPLES AND METHODS
OF
TEACHING READING

BY

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STUDY IN THE ELEMENTARY SCHOOL," "GRADED
MOVEMENT WRITING FOR BEGINNERS," ETC.

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PREFACE

AN artistic reading teacher is one of the most valuable assets of a school. She is as rare as wisdom, which "the gold and the crystal can not equal." Among a thousand instructors of youth how few there be who are cunning in the art of teaching beginners to read! A principal who possesses one of these rare treasures can better afford to lose three capable assistants from the top of the school than this one at the bottom. It passes all understanding why school authorities continue to give the greatest rewards for the commonest of gifts and provide no encouragement for the rarest. If, by any accident or effort or natural endowment, a teacher becomes an artist in a first-year grade, she can remain there only by sacrificing her pecuniary interest. In consequence of the conditions just mentioned, there is a steady exodus from the lower to the higher grades. Thus the principal is obliged to train large numbers of

raw recruits in low-grade work. The reading problem is the most important and the most difficult of all. A desire to contribute some small share of inspiration and guidance for this period of apprenticeship is responsible for the appearance of the present volume.

The author has collected into convenient form opinions, practices, principles, methods, devices, and experimental discoveries, widely scattered in books and periodicals, which, he ventures to hope, will be useful to students of education as well as to teachers in the service. The first chapter deals with reading as a mental process. It traces the various steps by which a child learns to talk and shows that learning to read is essentially a matter of association. The second chapter analyzes the physiological factors involved in oral and written speech and gives the results of recent researches on eye movements in reading. Chapter III formulates the principles deduced from the studies of the first two chapters. These principles are the raw material of the reading method expounded in Chapter V. In the fourth chapter the ends which the reading teacher has in view in the several grades

of the school course are discussed. A sharp distinction is made between the mechanics of reading and reading as literature. Chapter V presents the details of method in reading. It undertakes to lay down the principles governing the most approved current practice, and tells the novice how to proceed in teaching sounds, phonograms, blends, and sight words. It treats reading under the dual aspect of impression and expression, and sets forth the elements and methods peculiar to each phase. The sixth chapter presents the results of a study made by the author on the amount of matter that may profitably be read in each of the eight years of an elementary school. The inferences are based upon the experience of some seven hundred teachers and about thirty thousand children. This study is followed by a discussion of the method of testing children in reading. The next chapter gives a brief summary of the hygiene of reading, covering such items as paper, type, line, lighting, eye strain, and home study. A list of the authorities consulted in the preparation of the book concludes the volume.

The author gratefully acknowledges his in-

debtedness to Professor Robert MacDougall, of New York University, for reading the manuscript of the first two chapters and making valuable suggestions; to Dr. Edgar Dubs Shimer, District Superintendent of Schools, New York, for reading a portion of the manuscript and giving permission to quote from his personal letters; to *Educational Review* for permission to republish Chapter VI, which first appeared in its columns; to Charles Scribner's Sons for permission to reproduce an illustration from Ladd and Woodworth's *Elements of Physiological Psychology*; and to Dr. J. McKeen Cattell for permission to reproduce three charts from Dearborn's *Psychology of Reading*.

JOSEPH S. TAYLOR.

NEW YORK, February 1, 1912.

TABLE OF CONTENTS

CHAPTER I

	PAGE
THE PSYCHOLOGY OF READING	I
1. Stages of Infantile Language	2
(1) The Emotional Stage	2
(a) Importance of Gesture	3
(2) The Babbling Stage	5
(3) The Chattering Stage	8
(4) The Talking Stage	8
2. Kinds of Words Used by Children	9
3. Number of Words Used by Children	11
4. Visual Language	12
5. Reading a Form of Association	14
6. Laws of Association	18
(1) Recency	18
(2) Frequency	18
(3) Vividness	18
(4) Congruity	19
(5) Interest	19
(6) Voluntary Association	20
7. Illustration of the Process of Learning to Read	21
8. Silent Reading	25
(1) Mental Economy	28
(2) Increased Rapidity	33

CHAPTER II

THE PHYSIOLOGY OF READING	38
1. The Physical Basis of Association	38
2. Localization of Brain Functions	40
(1) Aphasias	40

TABLE OF CONTENTS

	PAGE
3. The Physical Basis of a Word	44
(1) How Words Get Recorded on the Brain	47
4. Physical Basis of the Meaning of Words	51
5. The Relation of Left-and-Right-Handedness to Speech	53
6. Muscular Movement Involved in Reading	59
(1) The Eye Moves in Steps Across the Page	59
(2) Steps Vary in Size in the Same Individual	59
(3) Steps Vary in Different Individuals	60
(4) Children take More Steps Than Adults	60
(5) Seeing Occurs During Pauses	61
(6) Letters Are Seen in Groups	62
(7) Motor Images Also Represent Groups	64
(8) Grouping is a Matter of Development	64
(9) The Eye Forms Short-Lived Motor Habits	65
(10) The Proper Length of Line and Size of Type as Given by Dearborn	65
(11) The Unit of Apperception Varies	65
7. The Meaning of Words is Largely Motor	66
8. Posture of Pupil	68

CHAPTER III

PRINCIPLES DEDUCED FROM THE PSYCHOLOGY AND PHYSIOLOGY OF READING (22)	70
---	----

CHAPTER IV

THE ENDS OF READING	77
1. Twofold Aspect of Reading	77
2. Primary Grades: The Mechanics of Reading	77
(1) Instant Recognition of the Speaking Vocabulary	77
(2) Analysis of Words into Phonic Elements	78
(3) Recognition, Representation, and Pronunciation of Phonic Elements	81
(4) Synthesis of Phonic Elements into Words	83
(5) Meaning of Unfamiliar Words	84
(6) Spelling	85

TABLE OF CONTENTS

xi

	PAGE
3. Primary Grades: Reading as Literature	85
(1) What to Read	85
(a) Interest — Summary of Conclusions (11)	87
(b) Other Qualities	93
(c) Adaptations	93
4. Grammar Grades: The Mechanics of Reading	99
(1) Supplementary Reading	100
(a) Information	101
(b) Inspiration	102
(c) Taste	103
5. Grammar Grades: Reading as Literature	103
(1) What to Read	103
6. The High School	105

CHAPTER V

METHODS OF TEACHING READING	109
1. The History of Method	109
(1) Reading Material	109
(2) Method	115
2. The Beginnings of Reading	120
(1) Some Definitions	120
(2) Principles Governing the Selection of Sight Words	121
(3) Principles Governing the Selection of Sounds to be Taught	122
(4) Teaching Sight Words	123
(5) Teaching Sounds and Phonograms	125
(6) Teaching the Blend	126
(7) Correcting Errors	126
(8) A Device for Beginners	127
3. Methods of Imparting the Content of a Reading Lesson	128
(1) Impression and Expression	129
(2) Lyrics (Primary)	130
(3) The Narrative Poem (Fourth Year)	131
(a) Lucy Gray	132
(4) The Total Impression	135

	PAGE
(5) Word Study	136
(6) Grammar, Figures, Allusions	138
(7) A Definite Aim	140
4. Reading as Expression	141
(1) Literature for the Ear	143
(2) High School Reading	149
(3) S. H. Clark on Oral Reading	150
(a) <i>Words</i> : get, hold, give the thought	150
(b) <i>Grouping</i>	151
(c) <i>Sentences</i> : the unit of a complete thought	151
(d) <i>Subordination</i> : an important principle of art	151
(e) <i>Transition</i>	152
(f) <i>Emphasis</i> : the exact meaning dependent upon it	152
(g) <i>Emotion</i> (sympathetic): imagine yourself in a certain situation	153
(h) <i>Emotion</i> (personal): here the emotion is real	153
(i) <i>Contrast</i> : a principle of all art	154
(j) <i>Climax</i>	154
5. Class Criticism of Oral Reading	154
(1) The Standard	155
(2) Who is to Criticise, and How?	157
6. Reading to Pupils	158
7. Memorizing	159
8. Story Telling	162

CHAPTER VI

A QUANTITATIVE STUDY OF READING	165
1. The Unit	166
2. Number of Words Taught in First Year	170
3. Total Amount Read	171
4. The Books Used in Reading by Children	172
5. Reading to Pupils	177
6. Relation of Quantity, Quality, and Time	181
7. Dramatization	184

TABLE OF CONTENTS

xiii

CHAPTER VII

	PAGE
A READING TEST	191
1. Analysis of the Problem	192
(1) Amount	192
(2) Interpretation	193
(3) Reading Aloud	193
(4) The Abstract	194
(5) The Dictionary Habit	195
2. A High Standard	195
3. Every Pupil Tested	196
4. Relative Value of Reading	197

CHAPTER VIII

THE HYGIENE OF READING	199
1. Sufficient Light	199
2. Tinge and Surface of Paper	202
3. Illustrations	204
4. Length of Line	205
5. Size of Type	208
6. Eye-Strain	211
(1) Diseases of the Eye	212
(2) The School Doctor	214
(3) Home-Study	215
7. Literary Style	216

CHAPTER IX

BIBLIOGRAPHY	221
------------------------	-----

CHAPTER X

TOPICS FOR DISCUSSION	226
INDEX	233

LIST OF ILLUSTRATIONS

	PAGE
1. The "Signs" of Reading	15
2. The Process of Learning to Read	22
3. The Process of Learning to Read	23
4. Key to Strange Alphabet	22
5. Brain Localization	43
6. Reading Pauses	60
7. Reading Pauses	61
8. Reading Pauses	62
9. A Page of the <i>New England Primer</i>	111
10. Accommodation in Vision	212

THE PRINCIPLES AND METHODS OF TEACHING READING

CHAPTER I

THE PSYCHOLOGY OF READING

LANGUAGE is the joint product of heredity and education. The child is born with certain instincts which are the basis of linguistic development. We may distinguish, among others, the following impulses leading to speech:—

The Expressive Impulse, a tendency to embody attitude or meaning in plastic or linguistic activities.

The Social Impulse, the tendency to exhibit such expression to an appreciative audience. Professor Dewey calls this the “greatest of all educational resources.”¹

The Imitative Impulse, the tendency to imitate linguistic sounds. Primarily this is not voluntary or telic imitation, but is largely reflex.

¹ *The School and Society*, John Dewey, University of Chicago Press, 1899, p. 58.

The Play Impulse, or the tendency to vary and extend speech sounds in an experimental way for amusement.

The kind of sounds a child finally adopts as his language depends upon his environment. Imitation is the controlling factor here. This is the case even among the lower animals. "So inadequate," says Tracy,¹ "is heredity alone, that the child will not learn the language of its parents unless he be in the society of those who employ it. If brought up among savages, he will speak their language; if among wolves, he will howl." Alfred Russell Wallace says, "Young birds never have the song peculiar to their species, if they have not heard it; whereas they acquire very easily the song of any other bird with which they are associated."²

1. *Stages of Infantile Language*. — Various stages in the development of language may be distinguished as follows: (1) The Emotional Stage, (2) The Babbling Stage, (3) The Chattering Stage, (4) The Talking Stage.

(1) *The Emotional Stage*. — The child comes into the world with a cry of pain. The cry is his only

¹ *The Psychology of Childhood*, Frederick Tracy, D. C. Heath & Co., p. 117.

² *Natural Selection*.

language, and is used for the expression of his feelings. A little later this cry is differentiated into several varieties, such as the voice of anger, the wail of disappointment, and the cry of physical pain. Further on come cries, screams, gurglings, and cooings indicative of energy, pleasure, or contentment. Children only a few months old are sensitive to the emotional expressions of others. The tone of the voice will soothe or irritate, exhilarate or depress them. The emotional language which thus serves to establish an understanding between a mother and her child is one of the beautiful mysteries of motherhood. Thus the emotional language gradually approaches the intellectual stage. The child learns to vary his grunts and squeals and cries and coos so as to express fear, surprise, desire, satisfaction, assent, question. Another element of fundamental importance is now added to the linguistic outfit in the form of gesture to accompany the voice.

(a) *Importance of Gesture.* — By means of tone, emphasis, inflection, and gesture, the child manages to express nearly all his feelings, ideas, and wishes before he has learned a single word; and by the same means he interprets to a considerable extent the feelings and wishes of others. Throughout life the

same vocal elements and gesture remain as vital auxiliaries of speech. Few of us realize how much gesture enters into the personality and language of people, especially of people who have no written language; but even among the civilized, whole races are characterized by the number and varieties of their gestures. It is almost impossible to imagine a non-gesticulating Frenchman. It has been said of the Arabs that they more than double the meaning of their words by the piquancy of their gestures. Delsarte analyzed speech into three elements,—voice, gesture, articulation. Voice (inflection), he says, is the language of the sensitive nature, or physical life; gesture is the language of emotion; articulation is the language of reason. “In considering the two languages of emotion, the verbal and the pantomimic, the latter is revelatory of the true man; while the verbal is more or less artificial. It takes many words to say what a single look reveals. Gesture is the lightning, speech the thunder. . . . Gesture shows the emotional condition from which the words flow, and justifies them.”¹

Gesture language, however, is not limited to the expression of emotion. It is employed both by the

¹ *Delsarte System of Expression*, Genevieve Stebbins, N. Y., 1889, p. 170.

child and by primitive man to convey knowledge. Tyler says that the language of gesture is about the same all over the world. "Mallery brought together some Utah Indians and a deaf mute, who gave them a long account of a marauding expedition, followed by a dialogue; they understood each other perfectly. . . . The language of analytical gesture is thus a substitute for spoken language; . . . its syntax resembles that of deaf-mutes."¹

(2) *The Babbling Stage*.—After the instinctive utterances already mentioned comes a period of babbling, when the child uses his vocal organs as a plaything. This stage occurs in the second and third quarters of the first year. Nature impels the child to exercise his vocal powers as a preparation for speech-learning. In a random (purposeless) way he will thus make nearly every sound in language over and over again. The babbling does not take the place of the earlier mode of expression, but is added to it. Toward the end of the first year, after a child has made countless random sounds, he has a stock of motor images of vocal utterance that enables him to reproduce the sounds he hears in a

¹ *The Evolution of General Ideas*, Th. Ribot, The Open Court Publishing Co., 1899, p. 51.

semi-reflex way. The following illustration of the babbling age is taken from my diary of a little girl. On the first anniversary of her birth I find this record :—

“Constantly babbling.”

“Understands — ‘Give me a kiss’; ‘Go to Papa’; ‘Go to Mamma’; ‘How tall is K.?’”

At the age of one year and twenty-one days this entry was made :—

“Is making rapid progress in the understanding of language. The following expressions are understood :—

“‘Get your stocking,’ ‘Bring Mamma your shoe,’ ‘Give it to Papa,’ ‘K. dance,’ ‘Take your doll and lie down,’ ‘Give that to Julia’ (she had torn a piece of paper off the shelf cover; her mother said, ‘Now go and give that to Julia.’ She marched off to the dining room and held the paper up to Julia); ‘Where’s the baby?’ ‘Put your hand through the hole.’ (This in dressing.)”

Up to this point she had used very few words of her own. Comprehension of language precedes use. Most of her utterances up to the age of one year were of the babbling kind, such as the following, recorded on the three hundred and fourth day :—

“Găă-găă, etc.

“Dăă-dăă, etc.

“Băbă.

“Băby.

“Güt-thă (th=as in *the*).

“A-ă-ă-ă-ă- (with an accent on each).

“Tă-tă (long sustained, with varying pitch).”

Out of the spontaneous babbling grows the no less spontaneous imitation of sounds. Instead of repeating chance sounds, he now imitates nearly every sound he hears. This phase is illustrated by the following record of K. :—

“*Thirteen months.*—To-day K. said ‘apple.’ She also says ‘good, good,’ and something that sounds like ‘Julia’ without the J.”

During the fourteenth month these expressions are found :—

“Boy” and “bow-wow.”

“Dicken” for “chicken.”

“Thank you” (without the *th*).

“Tries to hum a tune that Julia sings, and succeeds in making out enough of the air to distinguish it plainly.”

“She attempts to say almost everything now, and is constantly chattering.”

(3) *The Chattering Stage*.—And thus we have reached the third, or *word-learning*, stage of linguistic progress. Kirkpatrick says this phase may begin in the first year, but is not usually very marked till the last half of the second year. In the case of K. the point was reached at the very threshold of the second year. In the beginning, names are learned by associating the sound with the object, quality, or act denoted. In every case the association is assisted by circumstances, such as gesture, facial expression, inflection of the voice, and the like. The words that a child uses at this time frequently stand for phrases or entire sentences. Only that portion of a thought that needs special emphasis is expressed in words. All the rest is understood from such auxiliaries of speech as tone, inflection, gesture, the presence of the object, and the performance of an act. For instance, K. says, “Up!” when she desires to be lifted; “Down!” when she wants to get off your lap. “Dinne” means “I want my dinner.” “Dinna yedda” means “Dinner is ready.”

(4) *The Talking Stage*.—This is the last, or *sentence-making*, epoch of language acquisition. Progress from the preceding stage consists in substituting words for what was previously indicated or under-

stood by tone or gesture ; and also in a better mental grasp of the relations of different parts of speech, and of words that express these relations. For instance, when K. was a year and a half old, she used this sentence: "Give me gă!" meaning "Give me the glass." This is a complete sentence containing a verb, and is one of the very earliest uses of the personal pronoun of the first person. When, about the same time, she was dressed ready to go for a walk, she said, "Come on!" When she was through with her dinner she called out, "I done." Even subjective expressions denoting emotions begin thus early by imitation, perhaps sometimes without full comprehension. Thus K. at the end of eighteen months brought her little bath-tub into my study one day and tried to sit down in it. She failed and nearly fell over, then she walked away, exclaiming, "O dea!" On another occasion she expressed surprise by saying, "Doodness " (goodness).

2. *Kinds of Words used by Children.* — As to the kind of words a child naturally learns first, Tracy has collected important information.¹ He gives a summary of the vocabularies of a number of children

¹ *The Psychology of Childhood*, Frederick Tracy, Heath & Co., 1896, p. 117.

under three years of age, comprising five thousand, four hundred words. Of these —

- 60 per cent are nouns.
- 20 per cent are verbs.
- 9 per cent are adjectives.
- 5 per cent are adverbs.
- 2 per cent are prepositions.
- 2 per cent are pronouns.
- 1.7 per cent are interjections.
- 0.3 per cent are conjunctions.

Professor Kirkpatrick¹ has determined that of the words in the English language as found in a dictionary —

- 60 per cent are nouns.
- 11 per cent are verbs.
- 22 per cent are adjectives.
- 5.5 per cent are adverbs.

From this it appears that the number of *verbs* employed by a child is relatively larger than the number he employs in adult life. It must also be remembered that a child imitates movements before sounds, and expresses many actions by gesture rather than by words. Furthermore many words used by a child that have the appearance of other parts of

¹ Tracy, *op. cit.*, p. 146.

speech are in reality verbs (or at least embody action-ideas). Thus in the case of K., "up" meant "Please take me up"; "down" meant "I want to get off your knee"; "dink" meant "I want a drink of water." With these allowances made, it is evident that the verbs in a child's early vocabulary are relatively much more numerous than the table would indicate, and possibly three or four times as numerous as in the case of adult language.

These facts confirm all other studies of children as showing the importance of motor activity and the motor idea in primary education.

3. *The Number of Words used by Children.* — It is said that children rarely learn to walk and to talk at the same time. Walking usually precedes talking. Hence language-learning is not prominent till after the middle of the second year. "At two years of age a child's vocabulary may not exceed a score of words; but is likely to number from two to four hundred and may reach the surprising figure of ten or fifteen hundred."¹ Between two and four, progress in acquiring new words is usually somewhat irregular. After a child has learned to read with

¹ E. A. Kirkpatrick, *Fundamentals of Child Study*, Macmillan, 1903, p. 232.

some facility, a desire to know what is in books affords a powerful stimulus for the acquisition of new words. Kirkpatrick says a thousand new words a year would be a low estimate for a youth, and according to his investigations a high school graduate may know the meaning of twenty or thirty thousand words.

4. *Visual Language*. — Thus far we have considered the psychology of heard and spoken language prior to the school age. We have, in other words, tried to represent in psychological terms the linguistic condition of the child when he presents himself in school for the purpose of learning how to comprehend language through the eye and how to express it through the hand. The common names of the two new processes are *reading* and *writing*.

There is a vast difference between oral language and visual language. Oral speech is a fundamental psychological and physiological fact. No speechless race of men has yet been found. The human spirit shows in the faculty of speech a limitless power of creation. The so-called "bow-wow" theory of the origin of language (phonetic imitations of natural sounds) is discounted by the fact that words in different languages representing the same thing are different.

Between man and every other animal the gift of speech puts an immeasurable distance. "Our reverence for the nobility of manhood," observes Huxley, "will not be lessened by the knowledge that man is in substance and in structure one with the brutes, for he alone possesses the marvelous endowment of intelligent and rational speech. Thus he stands as on a mountain top far above the level of his humble fellows and transfigured from his lower nature, by reflecting here and there a ray from the infinite source of truth."¹

These remarks apply, however, only to spoken language. Visual language is purely conventional, and is possessed only by civilized or semi-civilized peoples. It is not the direct outcome of the instinctive impulses from which spoken language is developed. If visual speech were governed by instincts as potent as those of oral speech, the child would learn to read spontaneously. Neither has the necessity of communication much force in the case of reading, for the child already has an easy and adequate means of expression in his oral language. About the only instincts that the reading teacher can at first appeal to effectively are the play instinct and

¹ *Man's Place in Nature*, Thomas Huxley, pp. 119, 132.

the social desire for approbation. Hence progress in visual language, even with a teacher, is much slower for a time than progress in learning oral language without any formal teaching.

5. *Reading a Form of Association.* — When a child enters school he has already acquired the use of oral language. This means that he has associated with his concepts certain sounds which we call oral words, and certain muscular images of the vocal organs as these are employed in uttering words. These three things, the auditory image, the motor image, and the concept, are so indissolubly associated that any one is usually sufficient to call up the other two without conscious effort. Learning to read as a mental process is nothing more than the introduction of an additional factor into this group of associations in the form of a visual image, which we call the written or printed word. The four factors have been called the “signs”¹ employed in reading. The accompanying diagram illustrates graphically the relation of these signs.

Since reading is essentially a matter of association, we shall have to ascertain next what psychology has

¹ *Psychology in the Schoolroom*, Dexter and Garlick, Longmans, Green & Co., 1898, p. 126.

to tell us about that process. Association is an instance of the great law of nervous habit. Things repeated in the same order tend to unroll themselves

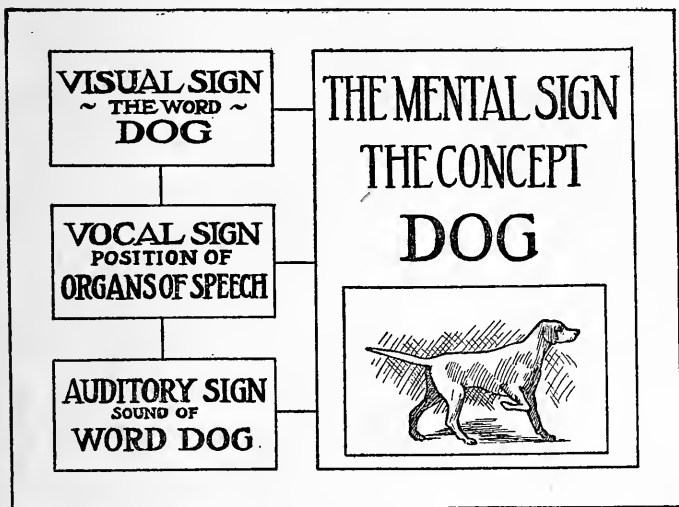


FIG. 1.

Adapted from Dexter and Garlick's *Psychology in the Schoolroom*.

again automatically, as, for instance, the nonsense rhymes used by children in counting off —

“*Ana mana mona mike*
Barcelona bona strike.”¹

If you have ever been out in the deep snow, you

¹ Many ideas and illustrations of association given here are borrowed from William James, *The Principles of Psychology*, Holt & Co., 1893, Vol. I, Chap. XIV.

know the difference between following the beaten path and making a new one. Nervous impulses have the same experience in getting themselves propagated through the central nervous system. They always tend to discharge themselves in the direction of least resistance; and this is the beaten path. Association is the psychological effect "of the physical fact that nerve currents propagate themselves through those tracts of conduction which have been most in use." If we think of the cause, we call the process habit; if we think of the effect, we call it association.

The laws of association are sometimes distinguished to the number of three or four, but it is probable that all might be reduced to two — *contiguity* and *similarity*. If certain objects or events are experienced in the same place or at the same time, and one of the group is reproduced at a subsequent time, the rest of the group tend to reappear, also. In the same way, objects that *resemble* each other tend to reappear together, even though the two were never experienced together before. Referring to our reading diagram, we may say that if the visual sign, the vocal sign, the auditory sign, and the concept or image have been simultaneously in consciousness often

enough, any one will be sufficient to recall the remaining three. Or, in other words, if the written word, the spoken word, and the heard word have been perfectly associated with the idea that they all express, the idea will recall all the modes of expression, and the three forms of the word will each recall the idea. "A child who comes across a difficult word (*e.g.* hippopotamus) has merely a more or less imperfect visual sign. This does not call up any vocal (or motor) sign (he cannot say the word); it does not call up any auditory sign (he is unaware whether another scholar does or does not pronounce the word correctly). It is needless to say that no mental sign is called up (the word has no meaning to him). A child who can read a given word (*e.g.* emu), but does not know its meaning, is able to call up all the signs except the mental one. The whole art of reading aloud correctly and intelligently consists in being able to reproduce all these signs simultaneously."¹ If we meet a familiar face on the street, or a familiar flower or bird in the field, but cannot remember the name of the friend or object, then we have the mental sign, but lack all the others. In reading we look at words and endeavor to make out their meaning. In

¹ Dexter and Garlick, *op. cit.*, p. 126.

composition we have meaning and try to find words to embody it. The two processes are complementary to each other. And in order to form deep and lasting associations between the words and their meaning, reading and writing should go hand in hand.

6. *Laws of Association.*—Certain mental factors are important in determining the predominant elements of association and influencing the direction of the mental movement. These factors, which give rise to the various phases of association known as laws of similarity, contrast, etc., are as follows:—

(1) *Recency.*—Other things being equal, the experience that is most recent is likely to determine the course of mental movement. If I sit down in idle meditation after an exciting day's work or pleasure, my revery is likely to be occupied with the scenes through which I have recently passed.

(2) *Frequency.*—To the preceding factors must also be added the frequency of connection between the presentations that are associated. If "*a*" has been associated with "*b*" twice and "*c*" but once, other things being equal, "*a*" is a better clew for the recall of "*b*" than "*c*" is.

(3) *Vividness.*—The intensity of the first impression also is an important factor of the subsequent

recall. This may depend on the nature of the stimulus, as a portentous sound, or my interest in the subject, or the emotion accompanying the impression. If you have ever witnessed a railroad accident, all accounts of such accidents will thereafter make a deep impression upon you. If you have ever visited the Palace of Versailles, any subsequent reference to Marie Antoinette will excite a lively interest. The art of creating vividness in teaching, therefore, would seem to consist in connecting your instruction with some significant experience of the pupil.

(4) *Congruity*.—A fourth element is what James calls the congruity of the emotional tone of an impression and our mood. If you are in good spirits, a funny story makes a stronger impression upon you than it would if you were sad. If the mood and the emotion are of the same tone, they support each other. If they are opposite in character, they tend to annihilate each other. Thus, an interesting novel has small charms for a man who is seasick.

(5) *Interest*.—That in which we are most interested makes the deepest impression on our minds and is most likely to abide. Just as in looking at a landscape certain features are picked out for attention, while others are ignored, so in recalling objects

and events, there is an unconscious partiality in the selection of elements, which in time changes the object. This is why a great man seems greater after death than before. In recalling him after he is gone, we are prone to dwell on his good qualities and to forget his frailties. In the course of time our idea of the man is transformed. Washington is already a demigod; Lincoln is fast becoming one. While they lived they were vilified as much as any living public man of to-day.

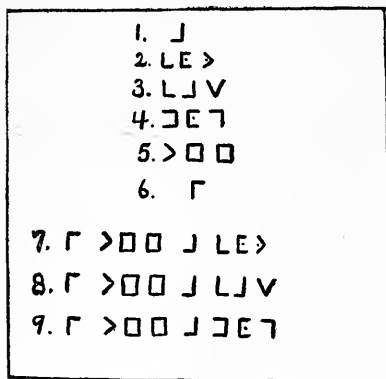
(6) *Voluntary Association*.—All the association thus far spoken of is involuntary. This is very important and all-potent with young children. But *thinking* may be defined as controlled or *voluntary association*. In revery and in memory association takes place in accordance with its own laws. In studying and thinking we make a conscious effort to vivify and intensify some one element above others, and in this way we determine the direction of the next associations. The skill of a teacher is shown by her ability to keep children in the control of their associations. When they lose this control, we say their minds wander, or they are not paying attention. They *are* paying attention, but not to the teacher. Their mental movement is revery, and

they sit and inwardly gaze at a panorama of imagery. The associations control them. Their eyes and ears are wide open, but they see and hear nothing. When they control their mental movements, the associations follow the words of the teacher, and all else is suppressed.

7. *Illustration of the Process of Learning to Read.* — James defines reading, psychologically, as “an interrupted and protracted recall of sounds by sights which have always been coupled with them in the past.”¹ This definition is incomplete, inasmuch as it leaves out two important elements of a complete process of reading,—the motor image and the conceptual element. As a matter of fact, it describes a good deal of *so-called* reading, which consists simply in converting sight-symbols into sound-symbols, with little or no appreciation of the meaning of what is read. The pronunciation of a series of words in a foreign language of whose meaning one is wholly ignorant would satisfy every demand of the definition. The various elements of the complex experience for which a word stands may of course be excited in unequal degrees, but each element is sufficient ordinarily to excite all the rest in some degree.

¹ *Op. cit.*, p. 557.

When one is simply glancing over a page in so-called silent reading, the vocal element seems to be

FIG. 2.¹

missing, but experiment proves that it is quite impossible to suppress the motor images of words, and even the actual movements of the vocal cords. Children and uneducated persons usually pronounce all the words, even when they read for themselves alone; and in cases where muscular movements cannot be detected by ordinary observation or by consciousness, their presence is revealed by delicate instruments. In

¹ Following is a key to the characters used in Figs. 2 and 3:—

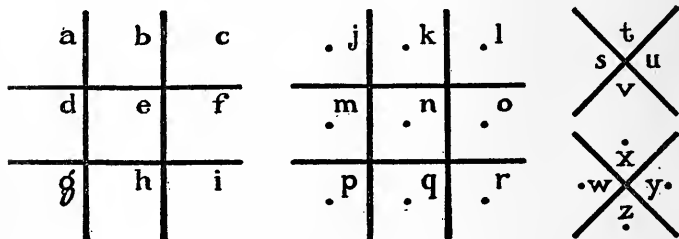


FIG. 4.

fact, as a clew for revival, the motor element in the association of a word complex seems to me to be the most potent of all. This conclusion is confirmed by experiments on memory with and without motor images.

In order to observe, if possible, what happens in the mind when one is learning to read, let us take the unfamiliar symbols in the diagram (Fig. 2).

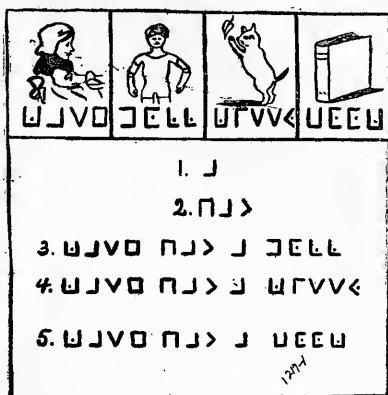


FIG. 3.

Suppose we say that no. 1 represents the word *a*, no. 2 represents the word *cow*, no. 3 represents *cat*, no. 4 is *dog*, no. 5 is *see*, no. 6 is *I*. Then see how much time and effort are required to read the sentences numbered 7, 8, 9. Make a similar experiment with Fig. 3. The oral words or auditory symbols are all familiar and thoroughly associated with the mental signs or meanings that they represent, and also with the motor images (vocal signs) of oral expression.

What we have now to do is to introduce and incorporate these visual signs with the three other signs already established in our mental experience. The more manifold we make the clues that radiate from our new symbol, the greater will be the chance of recalling the group of which it forms a part. If we associate the visual sign with the vocal sign only, as, for instance, in learning to pronounce a foreign word of whose meaning we are ignorant, it would require a great many repetitions to insure its automatic recall. If we add to the vocal sign the mental sign, we increase the chances of recall by connecting more of our experience with the new symbol. If to the mental sign we add the actual presentation, as, for example, a real cow, or a model or a picture of a cow, the total experience is further enriched and deepened by interest and other emotions, all of which constitute clues of recall. By an appeal to a child's love of muscular and play activity, the experience may become still more significant. This could be done by having the word printed on a card and kept in a box with other words, then, on exhibiting an object or picture, calling upon the pupil to select the word that represents the object. Finally, one of the most powerful of clues is the muscu-

lar image of writing the word after it is known. It is evident, therefore, that whatever reading may be as a complete process, teaching a child to read is a good deal more than converting sights into sounds.

8. *Silent Reading*. — The principle enunciated above, that the more manifold we make the clues that radiate from the visual symbol, when the child is learning to read, the more efficacious will be our teaching, has been disputed by some authorities. For instance, Mr. M. V. O'Shea¹ says that in reading, the auditory and vocal processes should be reduced to a minimum. He admits that we have to deal with the original tendency to interpret visual verbal forms through auditory and vocal forms; that these processes are probably never completely short-circuited; and that they continue as a sort of "interior" speech. But he thinks it highly important to develop in the pupil the habit of reading rapidly and getting his cue as to meaning principally through the eye. Rapid interpretation rather than correct pronunciation is the prime test of successful reading. Huey² goes a step farther, and says it is not nec-

¹ *Linguistic Development and Education*, The Macmillan Co., 1907, p. 223.

² *The Psychology and Pedagogy of Reading*, The Macmillan Co., 1908, p. 349.

essary for a child to pronounce correctly or to pronounce at all, at first, the new words. If he grasps approximately the total meaning of a sentence in which the new word stands, he has read the sentence. Even if the child substitutes words of his own for some that are in the book, the reading should be approved. He also says in another connection that "a purely visual reader is not an impossibility"; but admits that practically he has never found the purely visual type. Speaking on the point under discussion, Dr. Edgar Dubs Shimer, a keen psychologist and joint author of *The Progressive Road to Reading*,¹ wrote me privately the following exposition of his theory of mental economy in learning to read:²—

"I am seeking to keep the reality images (meanings, ideas, concepts) in the focus of consciousness, and all other images in subconsciousness. If the visual can be so vividly associated with the reality image that the latter is evoked immediately without interpolation of the vocal, the pupil will read with power as compared with the one who must take an indirect course from the visual to the vocal, and

¹ Silver, Burdett & Co., New York, 1909.

² Dr. Shimer has kindly permitted me to quote from this correspondence.

then perhaps even to the auditory, before reaching securely the reality image. The methods in the *Progressive Road* make for proper condensation in the association series. This is the secret of the supplementary stories for seat work. You know how difficult it is to arouse a reality image by a visual word image alone. In some cases it may be necessary that the vocal motor, or the auditory, or even both be aroused in order to bring the reality image into being. The superfluous associations of vocal and auditory images I desire to suppress, unless they really contribute to establish or make clear the reality image. Some teachers think that when a child has read an action sentence and then performed the proper action, the silent reading shows that a direct association was made between the visible symbol and the meaning. I need not tell you that ninety-nine times out of a hundred the visible symbols led to their vocal motor and auditory word images before the reality was reached. All I want to insist upon is that economy of effort and increase of power are secured by making the path from visual symbol to the idea as direct as possible. If it can be done, let the agglutination of the visible symbol with the reality be so close that no other word image

can be interpolated. . . . The only way I have found to accomplish this has been to supply choice and appropriate text for reading adapted to the child's interest, and to try through this intense interest to provide opportunity for the visual symbol to make by degrees for itself the same swift, immediate, and indissoluble association with the reality that the spoken word has. . . . Some one has well said that words are like panes of glass, to be looked through, not to be looked at."

The proposal to inhibit the vocal image raises a very serious question. In favor of inhibition is cited an assumed economy of mental activity and an alleged increase of rapidity in silent reading. Let us examine these arguments and see what they prove.

(1) *Mental Economy*.—Is it true that the direct and single association (if such were possible) between the visual word image and its meaning saves the mind useless labor? When the child is learning oral speech, we have already seen that instinct impels him to imitate every sound he hears, both before and after he attaches meaning to sounds. Nature in this case does not stop with the mere association of sound and sense, but causes every sound to seek immediate expression. Speech at this stage is a

sort of reflex mechanism, and every sound stimulus runs through Broca's Convolution to the mouth. From the point of view of development, expression seems to be an indispensable link in the chain of association. What a child hears he utters; what he knows he tells. When he has no companions, he talks to himself or his toys. Ideas that flit across his mind invariably seek outlet through some form of expression. So it appears that nature finds it impossible to educate a child without language; and language means communion,—giving as well as receiving ideas. Has not one of the most serious charges brought against the school of the past and present been this—that it is organized chiefly for listening; that it requires the child to be in a passive, receptive attitude, whereas he never individualizes himself until he acts or expresses himself through the muscular system? Why, then, if expression is so necessary, should an exception be made in the case of reading? Why should a child try to inhibit vocal utterance when nature seems to urge him to practise it? “A series of experiments,” says Colvin, “recently concluded by the Department of Psychology at the University of Illinois, in which about eighty school children were tested, seems defi-

nately to show that learning for all grades is considerably facilitated by allowing pupils to study in a whisper."¹ In a monograph on "ideational types," containing a series of original experiments and a review of ten well-known studies on the same theme, Mr. William Parker Wharton comes to this conclusion: "In the presentation of material by visual, auditory, visual-motor, visual-auditory, and auditory-motor methods, the best results, for correct, orderly reproduction by primary memory, are obtained by the visual-motor (articulatory) method, and the poorest by the purely acoustic method."² Dr. Shimer himself witnesses to the fact that, ninety-nine times out of a hundred, the vocal image is present; and experimental study in the laboratory proves that it is absolutely impossible to inhibit the muscular movement of speech when we think. In short, words are essentially motor.³ As soon as they appear in consciousness, they fly to the lips. There are, of course, types of mind in which the visual, the

¹ *The Learning Process*, S. S. Colvin, The Macmillan Co., 1911, p. 168.

² *Experimental Study of Ideational Types*, William Parker Wharton, Thesis for Doctorate in Philosophy, New York University, 1911.

³ "The printed or written word is a symbol not of an idea, but of a spoken word. The normal process of interpretation seems, therefore, to be from the printed word to the spoken word, and thence to the 'idea.'" — *The Educative Process*, W. C. Bagley, The Macmillan Co., 1905, p. 318.

auditory, or the motor element predominates; but in no case is it possible to eliminate muscular images of expression from our thinking. Why, then, should we try? Goethe has well said: "What you do not speak of, you will seldom accurately think of." But while I doubt the validity of Dr. Shimer's explanation, I am a firm believer in the efficacy of his method. The economy which results from his intensely interesting subject-matter comes, in my judgment, from the *vividness of the impression*. Other things being equal, memory bears a direct ratio to the strength of the stimulus. If you come across a strange word, like *aphasia*, in the course of a day's desultory reading, you may not remember the term ten minutes later; but if the same word happens to be the name of the disease that suddenly overtook your father this morning at nine o'clock, you are not likely to forget it as long as you live. The stories in the *Progressive Road* are so closely fitted to the mind and heart of a child that he is eager to read them; and he spontaneously makes the effort to overcome difficulties, which in some reading systems must be mastered by dull routine. To quote Goethe once more: "In every new department one must, in the first place, begin again

as a child, throw a passionate interest over the subject; take pleasure in the shell till one has the happiness to arrive at the kernel." Now, the mechanics of reading are the shell, and the passionate interest a child has in the right kind of subject-matter enables him to take pleasure in the shell while he is looking for the kernel. And in this procedure there is mental economy, because the activity is spontaneous, and without a sense of effort or fatigue. In the words of John Dewey we may say that reading has become a means of self-expression.

From further correspondence had with Dr. Shimer it appears that so far as the actual procedure of teaching is concerned, he lays as much stress upon multiple-sense appeal, and especially upon motor experience, as I do. For example, he says: "The teacher's real work [is] truly along your lines of procedure, . . . and I refer again to the *Manual of Progressive Road* to show that not an avenue of approach [is] neglected. Not only the auditory and the vocal, but the manual and visual (including the purely retinal and the oculo-motor) [are] used in conjunctions of all possible varieties that the occasion [demands]. From the very start phonics [receive] due emphasis in clear articulation and enun-

ciation, so that correct sound values [may] be secured from all. Then there [is] gradual addition of phonetics in which the phonic values [are] attached to the visible phonetic symbol. Oculo-motor and manual-motor exercises [help] to clinch. . . . When I wrote to you I did not think it necessary to establish my entire doctrine, and may have dwelt unduly on this phase of finally establishing in the pupil's progressive efforts, not a short-circuit, — this figure is misleading, — but an automatic subconscious slide from visible symbol to thought, so swift that only the starting-point and the goal would be high in clear consciousness."

(2) *Increased Rapidity*. — Many investigations have been made that tend to prove that individuals who rely upon the eye chiefly in reading forge ahead more rapidly than those who depend largely upon the ear and lips for their cue in making out meaning.¹ At the same time, it is claimed that rapid readers retain more than slow readers. The slow reader can reproduce less by sight than by sound; while the very rapid reader can recall more of the visual than of the auditory. This means that eye-minded-

¹ O'Shea, *Linguistic Development and Education*, The Macmillan Co., 1907, p. 226.

ness is an important factor in determining reading rates. In other words, rapid readers are generally of the visual type. Other ways of stating the comparison are the following: "The ten slowest readers show almost double the amount of lip-movement that the ten most rapid do"; or, the "ten most decided lip-movers read 4.1 words per second; while the ten who show least movement of lips read 5.6 words per second."¹ From these facts O'Shea infers that "the greater the number of modalities that are involved in reacting upon any word, the greater is the tendency of the word-idea alone to absorb the attention, and so defeat the end of reading. Therefore, we should employ methods that will reduce the auditory and vocal processes to a minimum or eliminate them altogether if possible."

I believe a fallacy lurks in these inferences. In the first place, the fact that a reader does not apparently move his lips is no proof that he is inhibiting motor images in his thinking; for one may inhibit the actual movement, but not the tendency to move, nor the motor image. This has been proved by conclusive laboratory experiments witnessed by myself. Furthermore, the implication that rapid

¹ O'Shea, *op. cit.*, p. 227.

readers remember more of what they read because they suppress the motor idea is contradicted by numerous experiments on memory, which show in every instance that recollection is better when the motor image is added to visual and auditory images than when the muscular idea is suppressed.

The facts in regard to lip-readers simply amount to this: that visual-minded people apperceive visual language more rapidly than the motor-minded.¹ Common sense would lead one to expect this very thing. It means that people who depend chiefly on the sense of sight for information and memory see more rapidly than those who depend upon some

¹ "My own experiments show similar results. The visual readers not only read more rapidly than those who have an 'inner speech,' but reproduce more of what has been read (judged by an immediate test: I do not know what a delayed test would show). Not to have the habit of subarticulation does not seem, in an adult, to impair understanding or retention. In *learning* to read it seems to me both inevitable as an accompaniment and indispensable as a means. If, therefore, the distinction of visual and motor types in readers is an ultimate (or congenital) mental difference between individuals, we can say that the visual-minded deal more easily and successfully with visual material, but if these be, in any degree, acquired characteristics, then we should have a right to say: In so far as the direct visual habit can be cultivated, it is of advantage to develop it. I have found that the visual readers report the general amount of their reading to be greater than that reported by readers of the other type, which suggests a relation between practice and the rise of this form of association." — PROFESSOR ROBERT MACDOUGALL, New York University, in a personal note to the author, commenting on the above paragraph.

other sense. It is my opinion that children are all motor-minded; that the muscular image, as some one has said, is the greatest psychological discovery of modern times. The importance of the motor idea in the mental life of the child is shown in his passion for movement, his interest in the action and function of things, his instinct of making and handling objects, his manner of learning oral speech, and in reading and in studying. The actual movement of the lips in reading will tend naturally to diminish as the pupil gains skill in speech. But the motor images remain as a vital element of the total association of the word. If this were not the case, it would be impossible to utter words at will, since there must be a pattern of movement in the mind before any voluntary action can take place at all. One other consideration must be borne in mind in this connection; namely, that in learning to read the child is not merely getting thought from visual language, but is fashioning a tool for future use. The word is a medium through which one sees the thoughts of others; but it is also an implement for the expression of one's own thoughts. It is not a complete word until it has gone through the motor stage. Intelligent educators recognize this when they in-

sist that we shall not teach the spelling of words that children cannot use. Now, use always means a motor function. Furthermore, the use of common words must be automatic in order to be effective. Hence the expressive phase of words cannot be eliminated even if it were desirable to do so. In the early reading lessons the most difficult problem is to get the child to remember his sight words and phonetic elements; and the motor element of this learning process is the most important of all the clews of memory.

CHAPTER II

THE PHYSIOLOGY OF READING

IN order to make his method scientific, the teacher studies not only the laws of mental development and action, but tries to discover also how activities of the mind are related to the nervous and muscular functions of the body. Our next inquiry, therefore, is: What are the physiological factors in the process of reading?

1. *The Physical Basis of Association.* — In physiological terms we may say that if two or more groups of brain cells are stimulated simultaneously or by like objects, a subsequent stimulation of one of them tends to produce action in the remaining ones. The cells in each region of the brain and of the different regions are connected by means of fibres; and all experiments point to the conclusion that these connecting fibres are involved in association. Dr. Vulpius says connecting fibres begin to grow in the outer and inner layer of the cortex about the fifth month of the infant's life, and cease to grow at the age of seventeen. The motor, sight, and hearing regions

reach the maximum number of fibres during the second year. The speech centre keeps on increasing its fibres in number rapidly until the eleventh year, and more slowly until the thirty-ninth year.¹

The inferences from these facts seem to be that the necessities of the infant's life call first for the motor development; and, as movements are associated with visual and auditory impressions, these centres function at the same time. The motor apparatus is perfected rapidly after the fifth month, so that at about the age of one year children usually begin to walk; and by the end of the second year the growth of motor fibres culminates, which implies that henceforth nature demands a tremendous amount of motor activity. The rapid development of the speech centre culminates at eleven, which seems to mean that the most favorable period for language teaching is at that age and immediately afterward. This corresponds roughly with the period when the child in most European countries goes to the secondary school and begins the study of a foreign language. In our country the study of foreign language is postponed until the age of fourteen. European practice is in closer harmony with physi-

¹Frederic Burk, *Pedagogical Seminary*, Vol. 6, p. 5.

ological demands than our own procedure. There is an agitation now going on which seeks to end the elementary period with the sixth school year. This would involve a complete reconstruction of our educational system, but as the proposal is supported by the experience of foreign nations as well as by the teachings of brain physiology, we may in time yield to the argument.

2. *Localization of Brain Function.*—We have as yet an imperfect knowledge of the localization of brain function. From what we do know the probability is strong that every mental activity involves a corresponding physical activity. We know, for instance, that the motor area is located on each side of the Fissure of Rolando. The region above the Fissure of Sylvius is the speech centre. Hearing is located in the temporal region. Sight is in the occipital lobe. These facts have been verified by several methods, the most convincing of which is that when a given region of the brain is damaged the corresponding mental function disappears.

(1) *Aphasias.*—The dependence of words upon brain substance is clearly shown in the following experience of Dr. William H. Thomson,¹ of New

¹ *Brain and Personality*, Dodd, Mead & Co., 1897, p. 88.

York: "I was once hurriedly sent for by an old patient of mine. I found her much disturbed by a strange experience which she immediately detailed in the well-chosen words of an educated woman: 'What is the reason, doctor,' she said, 'that everything in a book or newspaper is illegible to me? Last evening I sent an advertisement to the *Herald* for a waitress, and when the girls came this morning I could not read their references. I then took up the *Herald* and found that I could not read a word in it. At first I supposed my eyesight had failed, but I could see everything around the room as well as ever, and so also with my crochet work. I then opened the Bible, but could not read a word. What is the matter with me?' I at once recognized that she had been struck with word-blindness. . . . Having calmed her excitement as best I could, I was able to note that she had absolutely no other disorder of speech and none of vision. She heard every word that came to her ears, and she could speak as fluently as ever, but no word could reach her consciousness through her eyes. All that as yet had happened to her was that a little artery which supplies blood to a small area in the visual region of her brain had become plugged, with the result of totally

disorganizing the gray matter where eye words are registered. The brain gray matter . . . immediately dies if deprived of its supply of blood."

The defect described here is called by scientific men *alexia*, and consists in a loss of power to read. The printed characters are seen, but they convey no meaning. The individual thus affected may be able to write, but is unable to read what he has just written. Words as visual symbols are blotted out.

Another form of aphasia is known as word-deafness. A man thus stricken may at first be supposed to have become insane, because he talks nothing but gibberish and cannot understand anything that is said to him. It may, however, turn out that he can read and write as well as ever, and to all questions put to him in writing he may write correct and intelligent answers. He can hear and understand the ticking of a watch and the notes of a canary and all other sounds except those of spoken words. This disease is caused by injury to a small area of the brain which is described as a part of the left superior temporal convolution. (See "Wernicke," Fig. 5.)

The aphasias thus far illustrated are of the sensory type. Motor aphasia is known under the general

name of *apraxia* and is defined as "a loss of ability to perform learned or skilled acts, in the absence of paralysis, or ataxia, or pronounced sensory or perceptive defect."¹ A man retires at night in good health, and finds himself unable the next morning

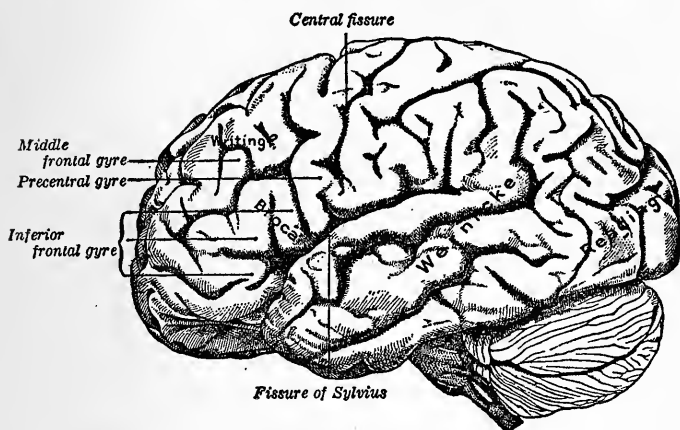


FIG. 5.

Reproduced, with permission, from Ladd and Woodworth's *Elements of Physiological Psychology*.

to speak a word. He is not suffering from word-deafness, for he understands everything that is spoken to him. Nor is he affected with word-blindness, because he can read. In his distress he indicates by gestures that he would like to write; but

¹ *Elements of Physiological Psychology*, Ladd and Woodworth, Scribner's Sons, 1911, p. 254.

though he can hold his pen and move it on the paper, he can find no words to express himself by writing, any more than he can by speaking. Words as motor images have disappeared from his mind. This affliction is usually caused by an injury to Broca's Convolution. (See Fig. 5.)

3. *The Physical Basis of a Word.* — Animals have cries, calls, grunts, squeals, screams, and whatever other sounds there may be, but no words. Their language corresponds with that of the infant's first stage, when his only utterance is a cry. The cries in each instance are purely instinctive. The principal truth about a word is that it is the result of a voluntary act of the mind. Apart from a thinking mind it has no existence. Every word was originally made by a personality which designed it. The word is an instrument which the thinker invents for himself for the purpose of defining his thoughts. Feelings may be expressed by a cry or other sound. They do not need words to become true feelings. In fact, language usually fails when we try to express our feelings. But thoughts need words to become true thoughts. Hence speech is the basis of man's superiority over the brute creation.

The complexity of the cerebral elements concerned

in the knowledge and use of words is shown by the manifold sensory and motor experience that verbal expression involves. Words are, in the first place, objects of sense-perception. The spoken word is recorded on the auditory region of the cortex. The written or printed word leaves its trace on the visual centre. The point-word of the blind produces an impression through the tactile sense.

There is, in the second place, a large variety of motor forms of reaction. When one looks at a word the ciliary muscle is exercised, and the *motores oculi* perform their share of the labor of accommodation. When one observes the writing of a word, an additional motor experience is furnished by the eye as it follows the movement of the point of the writing instrument. If one writes himself, the eye follows the hand, while the muscles of hand, fingers, wrist, forearm, and whole arm make their record of movement and resistance. The spoken word exercises the vocal cords, tongue, lips, larynx, and diaphragm. Assuming that each of these motor processes involves a separate brain area, it is thus evident that the mere form of the word is functionally related to a vast number of cerebral elements.

Alexander Bain was one of the first of modern

psychologists to discover the significance of the motor idea in the mental life. "Thinking," he says, "is restrained speaking or acting."¹ "A child cannot describe anything that he was engaged in, without acting it out to the full length that the circumstances will permit. . . . No better example could be furnished than the vocal recollections. When we recall the impression of a word or a sentence, if we do not speak it out, we feel the twitter of the organs just about to come to that point. The articulating parts—the larynx, the tongue, the lips—are all sensibly excited. . . . Some persons of weak or incontinent nerves can hardly think without muttering—they talk to themselves."²

Commenting on this passage, Stout says that Dr. Bain "rather understates his case; this habit is by no means confined to persons of weak or incontinent nerves. It is often found in those who become intensely absorbed in their own trains of thought to the disregard of their social surroundings. . . . Ideational process is correlated with brain process. The brain is so intimately one with the rest of the organism that processes in it cannot take place without in some measure overflowing to other parts

¹ *The Senses and the Intellect*, 4th ed., p. 358.

² *Op. cit.*, p. 357.

of the body. . . . Where ideational activity is just struggling into independent existence, so that it may be regarded as little more than an extension or supplement of perceptual activity, ideas can scarcely fail to pass into overt movements." ¹

(1) *How a Word gets Recorded on the Brain.* — Three speech areas have been determined on the cortex of the brain, — the auditory, the visual, and the motor. These are normally connected by fibres, so that stimulation of one affects each of the others. The sound of a word suggests its written or printed form; the sight of a word calls up its sound; and both the sight and the sound will tend to inaugurate expression. A stimulus acting upon the sense-organ is transmitted to the brain, where it affects certain nerve-cells. If this stimulus is repeated, the impression is deepened. The constant and prolonged repetition of a stimulus will thus effect a permanent anatomical change in the brain stuff. This change no microscope can detect; but that it exists, no intelligent man can doubt. The words that one hears produce permanent changes in the auditory region. The words that are seen are recorded in the

¹ *Manual of Psychology*, G. F. Stout, Hinds & Noble, N.Y., 1899, pp. 468-469.

visual area. Motor images of expression, whether oral or written, are supposed by some to be the exclusive function of Broca's Convolution.

In 1861 Broca first announced his important discovery that a certain *gyrus* above the Fissure of Sylvius on the left hemisphere is especially concerned in exercising the power of speech. He explained the fact that aphasias usually follow injury to the left half of the brain by relating speech to gesture, one of the early and instinctive modes of expression. As most men are right-handed, they are left-brained in language. Broca, however, spoke of a "faculty" of language and believed that its physical basis is in what we now know as Broca's Convolution. There is no faculty of language as such, whose seat is confined to any particular area of the brain. Speech involves all the faculties or functions of the mind, and is not confined to any one cerebral area. But there seems "to be good ground for still retaining Broca's speech centre, while relieving it of part of its supposed duties."¹

Now these three speech centres — the visual, the auditory, and the motor — do not create words. They merely register words fashioned by the human

¹ *Elements of Physiological Psychology*, Ladd and Woodworth, p. 261.

spirit and keep them ready for use. Emperor Charles V is credited with the saying that a man is as many times a man as the number of languages he knows. In addition to the various forms of aphasias already referred to, there is one known under the name of *asymbolia*.¹ This has led to the inference that there are separate cerebral areas for each language, as well as for figures, music, and objects. Thus, it has been shown that injury to the brain may blot out all English words; but leave Latin, Greek, and French intact.² Similarly, there are separate areas for recording music and figures; for cases are cited of patients who had lost the power of reading music, though they could still read words; and Dr. Thomson treated a patient who had lost the power to read and write words, though he could both read and write figures, and continued active in business for several years after his misfortune had overtaken him. He never recovered the use of words, but retained his knowledge of figures to the end of life.³ Perhaps this physiological pecu-

¹ Ladd and Woodworth, *op. cit.*, p. 252.

² Professor Hinshelwood, of the University of Glasgow, in *Lancet*, Feb. 8, 1902. See also his book, *Letter, Word, and Mind Blindness*, London, 1901.

³ *Brain and Personality*, W. H. Thomson, Dodd, Mead & Co., 1908, p. 102.

liarity explains why a child learns two languages as easily as one, and uses the two without confusion.

When a child learns to talk, he begins with babbling; that is, he imitates all sorts of sounds that he hears, merely as sounds. He plays with his voice. This shows that the auditory region and Broca's Convolution are so intimately related, though so far apart in space, that every sound registered in the one gets itself automatically expressed through the other. In the next stage the child recognizes sounds as significant; he apperceives them as words. Then he chatters. Words are now repeated as incessantly as empty sounds were before. This is practice, practice, practice, but all instinctive, all in the form of play. Thus unconsciously and without formal teaching oral speech is registered in the auditory area and in Broca's Convolution.

We have already pointed out that reading and writing are not instinctive, but conventional. The child will not learn to read and write through mere playful imitation, as he learned to speak. A teacher becomes necessary; and he must supply artificially the conditions that nature provides in oral speech. These conditions are interest and practice, practice, practice. The connection between the auditory

region and Broca's Convolution is fully established. The task now before us is to connect the third or visual area with the other two. Drill takes the place of play. The seen word must be associated with its sound, with its expression, and with its meaning. And there is no royal road to success. All we can hope to do is to appeal to interest and the play instinct and thus imitate as nearly as possible the natural conditions found in the case of oral speech.

4. *Physical Basis of the Meaning of Words.*—Sir William MacEwen, an eminent Professor of Surgery in the University of Glasgow, gives the following interesting particulars in the case of a mechanic who had received a severe injury to his head:¹ Immediately after the accident he was in a peculiar mental condition. Physically he could see, but what he saw conveyed no impression to his mind. Thus an object presented itself before him which he could not make out, but when this object emitted sounds of the human voice, he at once recognized it to be a man who was one of his fellow-workers. He was equally unable to recognize his wife and children.

¹ Address before the British Medical Association, etc., *British Medical Journal*, 1888, Vol. 2, p. 307.

By eyesight he could not tell how many fingers he held up when he placed his own hand before his face till he became aware of the number by the sense of touch. These symptoms gave the clew to the hidden injury in his brain and told the surgeon where to trephine the skull. The operation showed that a portion of the inner table of the skull had been detached and become embedded in the gray matter of that locality. The bone was removed; and then the patient recovered and returned to work.

From this and similar cases we learn that seeing and knowing what is seen are not the same thing, because each of these mental processes has a distinct material basis in the brain. We have already cited a case of word-blindness, an affliction under which a patient sees words but does not know what they mean. The case of Professor MacEwen is called mind-blindness, although it is no more such than the other. The significant thing in both cases is the fact that there is one region of the brain which registers words, and another which registers their meanings. There is a separate area employed in seeing objects and still another area in making out what the objects are. We have already explained what is meant by sound-deafness. The patient

hears perfectly the spoken words of others, but does not know what they mean. There is a place in the temporal lobe where sound stimuli in general are registered and an adjoining area where the meaning of sounds in general is recorded. Let this latter region be separately damaged, and the victim cannot tell the sound of a boiler factory from a church bell. All sounds are alike indistinguishable noises. From these illustrations it is certain that the knowing areas are distinct from the sensory areas, but in close proximity. In other words, the "meaning" of a spoken or written word is registered on a distinct cortical area. We therefore have a fourth physiological factor to add to the three speech areas already described; namely, the word-meaning centres. And as there is one area for the meanings of heard-words and another area for the meanings of seen-words, the total number of speech centres for words alone is five. If we recall that music and numbers and foreign languages occupy each a distinct place on the map of the cerebral hemispheres, we get some notion of the complexity of physiological functions involved in the speech of an educated human being.

5. *The Relation of Left-and-Right-Handedness to*

Speech.—In the first chapter we called attention to the fact that when the child begins to employ gesture as a mode of expression he uses one hand more than the other, and thus determines (or shall we say indicates?) whether he is to be right-handed or left-handed. We shall now see that right-handedness and left-handedness bear a most remarkable physiological relation to the development of oral and written speech. It is well known that the left brain governs the right side of the body, and the right brain governs the left side of the body. Injury to either hemisphere of the brain produces, therefore, paralysis on the opposite side of the body. It should also be recalled that most people are right-handed. With these facts in mind we proceed to quote the following statement, written by Professor Ladd of Yale in 1891: "Aphasia is far more frequently due to changes in the *left* than in the right hemisphere of the brain. Dr. Seguin, out of 260 cases, calculated the proportion of aphasias due to lesions on the *left side*, as compared with those due to lesions on the right, to be as 243 : 17 or 14.3 : 1. . . . Such facts have led to the theory that, in all but left-handed men, speech, like other motor functions, is chiefly *left-brained*; remarkable cases of left-handed

people who have become aphasic through lesions on the right hemisphere are actually recorded.”¹

Twenty years later the same authority writes as follows: “Simple paralysis or loss of sensation results from injury to either hemisphere. But object-blindness, word-blindness, or word-deafness, the various aphasias and apraxias, usually result from injury to the left hemisphere.”² That is to say, ordinary movement and sensation are the function of both sides of the brain, but special skills and the record of education seem to be the function of one hemisphere only. The patient treated by Dr. Thomson suffered injury to Broca’s Convolution of the left hemisphere; but he had a perfectly sound right Broca which had no record of speech. Professor MacEwen’s patient was a right-handed man, and the splinter was driven into a convolution of his left brain, or the speaking hemisphere. Now he had exactly the same collection of cells on his right hemisphere, all uninjured, yet these could not help him to recognize his own wife and children. It is evident, therefore, that those cells on the right hemi-

¹ *Elements of Physiological Psychology*, George Trumbull Ladd, Scribner’s Sons, 1901, p. 295.

² *Elements of Physiological Psychology*, Ladd and Woodworth, Scribner’s Sons, 1911, p. 263.

sphere could see because they belonged to the visual area, yet they did not know what they saw. Though belonging to an adult man, they had never been taught the meaning of visual objects, and did not know what they saw any more than an infant knows what it sees the first week of life.

All our education, therefore, is registered on one side of the brain only. If that side is injured, some mental functions disappear; if the uneducated side is damaged, intelligence remains intact, although paralysis may ensue. "It would seem, from the evidence obtained, that the left hemisphere so completely takes charge of acts of skill, and of intellectual processes concerned in them, as to leave nothing for the great bulk of the right hemisphere to do. Such a conclusion is, of course, in itself extremely improbable, especially in view of the nearly equal size and inner development of the two hemispheres; but it must be admitted that the rôle of the right hemisphere, aside from the simplest sensory and motor functions, is not at all clearly made out."¹

"A man who was one of the strongest thinkers and

¹ *Elements of Physiological Psychology*, Ladd and Woodworth, 1911, p. 264.

one of the greatest masters of English style that I have ever known," says Dr. Thomson,¹ "had his mind totally wrecked one morning by an apoplectic clot. But though he lived for months afterwards with his right brain hemisphere apparently as sound as ever, yet he could not recognize the dearly loved members of his family either by sight or by their voices. His intelligence was simply suddenly annihilated by the injury in his left hemisphere." The same writer cites the following remarkable case: A patient forty-seven years of age awoke one morning with his whole left side numb and paralyzed. "He remained thus paralyzed ten years till he died, but meantime his speech was perfectly normal, his reading good, and his memory unaffected. He gave no sign of mental weakness, but was always intelligent, patient, cheerful, and particularly good in attention. He read papers constantly and liked to talk politics. He bore his disability bravely, and was neither depressed, emotional, irritable, nor apathetic. At the autopsy a large cyst full of fluid occupied the anterior part of the right hemisphere, with the whole tissue disorganized and without any

¹ *Brain and Personality*, W. H. Thomson, Dodd, Mead & Co., N.Y., 1908, p. 237.

remains of gray matter, while the posterior half of the hemisphere was everywhere atrophied."

Now what determines which hemisphere shall be educated? Most men are right-handed, hence aphasias and apraxias occur generally from injury to the left brain. "This special culture of the left hemisphere — if we may so express the fact — may well enough be connected, both as cause and effect, with the prevalent right-handedness of the human species." Thus Ladd and Woodworth.¹ Some, more bold, have ventured the statement that the hand that an infant uses predominantly for gesture determines not only whether he is to be right-handed or left-handed, but also whether his right or left hemisphere is to be educated. Apparently no area of the brain ever interchanges its capacity with any other. The auditory area cannot be taught to see, the visual area cannot be taught to hear, and neither of them can take the place of Broca's Convolution. Neither can the seeing area be taught to know what is seen or the hearing area to know the meaning of sounds. Recoveries in aphasia are explained on the theory that there has been no total destruction of tissue, or that the corresponding area in the opposite

¹ *Op. cit.*, p. 264.

hemisphere has been educated to do the work of the injured one. In young persons, while the nervous system is still plastic, this is possible. But after the age of fifty it is usually impossible to induce the uneducated hemisphere to learn any new tricks.

6. *Muscular Movements involved in Reading.*— Numerous attempts have been made to ascertain the exact behavior of the eyes when we read.¹ By these studies the following facts have been established:—

(1) By means of photographs and recording apparatus attached to the eyes, it can be proved that the eyes in reading do not travel at a uniform rate of speed across the page, but move along in steps.

(2) These steps vary in size and number from line to line in the case of a single individual. In Fig. 6 we have the record of four successive readings of a line by the same subject.² The short vertical lines show where the pauses were made. The figures at the right indicate the number of pauses.

¹ The most noteworthy of these studies are found in the following two volumes: (a) *The Psychology of Reading*, by Walter F. Dearborn, Science Press, N.Y., 1906; (b) *The Psychology and Pedagogy of Reading*, by Edmund B. Huey, The Macmillan Co., 1908.

² Dearborn, *op. cit.*, p. 75.

The figures over the words indicate the duration of the pause in thousandths of a second. When the fixation was unsteady, a bracket and curve show the beginning and ending of the oscillation. The shift is from bracket to curve. The second reading in the

SUCCESSIVE READINGS BY THE SAME SUBJECT OF A NEWSPAPER

COLUMN

CHART I A

No. of Record		No. of Pauses
5A	ST. PETE ⁴⁹⁰ RSBUR ¹⁴⁰ G, Nov. 2.—Th ¹⁴⁰ e Ad ²⁵⁰ (m)iralty	6
13B	ST. PE ⁴⁹⁰ (TE)RSBURG, [N]ov. 2.—Th ¹⁴⁰ e Ad ²⁵⁰ (m)iralty	4
15A	²⁰⁰ ST. PET ¹⁶⁰ ERSBURG, Nov. ¹⁶⁰ [2.—)Th ³⁴⁰ Adm ³⁴⁰ (ira)lty	4
15B	^b ST. PETER ⁴⁴⁰ SBURG, Nov. 2.—Th ²²⁰ e Ad ²⁰⁰ m ²⁰⁰ (ira)lty	3

FIG. 6.

From Dearborn's *Psychology of Reading*, by permission.

case was made a month after the first; the others were made immediately after the second.

(3) The steps vary in size and number in different individuals. In Fig. 7 we have the record of five subjects, whose steps vary in number from 3 to 7 for the same line.

(4) Children take more steps than adults and move more slowly. This characteristic is verified by common observation. Beginners in reading assist the eye in its long journey across the page by the use

of the fingers, which mark the numerous stopping places. Thus, tests made by Dearborn¹ on three children aged 9, 10, and 11, respectively, show in the youngest subject about double the number of

READINGS BY FIVE SUBJECTS OF THE SAME NEWSPAPER PASSAGE

Subjects	CHART II	No. of Pauses
T	ST. PE ³⁴² (TE)RSBUR ¹⁸² [G, No ¹⁵² (v.) 2.—Th ³⁶¹ e Admiralty	4
H	ST. PE ⁴⁹⁰ [TE]RSBURG, [N]ov. 2.—[Th ¹⁴⁰ e Ad ²⁵⁰ (m)iralty	4
S	[ST.]PETER ⁴¹⁶ [S(B)URG, Nov]. 2.—(Th ³⁰⁶ e Ad ¹³⁶ miralty	4
F	ST. P ⁶⁷⁰ [ET]ERSBUR ^{b1 b2 1116} [G, Nov). 2.—The A ⁶⁴⁶ (dm)iralty	3
M	(S[T.]PE]TER[SBUR[G,)No ⁸¹¹ (v.) 2.—[Th ¹⁴⁸ e Ad ¹⁴⁰ miralty	7

FIG. 7.

From Dearborn's *Psychology of Reading*, by permission.

pauses found in the case of ordinary adult reading. (See Fig. 8.)

(5) All the seeing takes place during the pauses. While the eye is moving from one fixation to another, it cannot see. The exact length of each pause can be ascertained as well as the total time, and a calculation shows that the eye-movement between pauses is so rapid that a fusion of stimuli results and makes vision impossible. In reading, the eye takes

¹ *Op. cit.*, p. 97.

a fixed position, then surveys the line for some distance on each side of the fixated point, taking in at a glance all the letters within the range of clear vision, after which it passes on to a new point of observation.

(6) It has been proved, further, that adults in reading do not attend to individual letters, but recognize them in groups. Thus, with a reaction machine

CHART XVII B

C. L. Third Grade. Age 11. First Reading

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FIG. 8.

From Dearborn's *Psychology of Reading*, by permission.

it is ascertained that a word of five letters is recognized in the same time that is required for the identification of a single letter standing by itself. On page 100 of Huey's *Psychology of Reading* are four columns of reading matter. The first column contains 25 letters; the second contains 25 words of 4 letters each; the third contains 25 words of 8

letters each; and the last column contains 25 words of 12 letters each. I tested a high school girl on the first three columns with the following result: first column, 7 seconds; second column, 10 seconds; third column, 12 seconds. This means that it required only three-sevenths more time to read 100 letters in the form of words than was required to read 25 letters standing alone. It required only one-fifth more time to read 200 letters in the form of words than was required to read 100 letters in the form of words. The same experiment with a college freshman resulted as follows: letters, 11 seconds; second column, 12 seconds; third column, 16 seconds. In terms of percentage, the test with the girl means this: to read 25 single letters requires seven seconds; combine the letters into words of four letters each, and she can read four times as many letters in only 43 per cent more time; combine the letters into words of eight letters each, and she can read eight times as many letters in only 71 per cent more time. The freshman's test shows that with about 10 per cent more time than it takes to read 25 single letters he can read 25 words of four letters each, and with about 45 per cent more time he can read 25 words of eight letters each.

The conclusion is inevitable that, in reading, words

are recognized as wholes; or that the letters composing words are recognized in groups.

(7) Experiments on muscular memory¹ have shown that motor images are an important part of our memory of words, and that there is so strong a tendency to muscular movement of articulation when we think of a word, that it is impossible entirely to inhibit the movement. These movements of articulation, like the movement of the eyes in reading, represent words as wholes. Indeed, as Judd says, the eye-movements across the page seem to undergo a further reduction by which a single unitary movement may correspond to a whole group of words, rather than to single words. Cattell found one reader who could read seven words at a single exposure, and several who could read four words.

(8) The fact that the steps of the eye across the page are shorter in the case of children than of adults shows that the grouping of word elements into thought wholes is a matter of development. The strong tendency of children to read words as individuals rather than as elements of a larger thought group confirms the above conclusion.

¹ T. S. Smith, *American Journal of Psychology*, July, 1896; Charles H. Judd, *Genetic Psychology for Teachers*, D. Appleton & Co., 1903, p. 244.

(9) The eye has a tendency to form short-lived motor habits. For instance, a subject, in reading nine lines, read the first four with four fixation pauses for each, and the next five with three pauses for each. Rapid readers form these habits more easily than slow readers. There are relatively fewer pauses when the lines are short, of uniform length, and of equal indentation, than when the lines are long, of variable length, and irregularly indented.

(10) Dearborn announces his conclusion that the "size of the type should not be so large in comparison with the length of line that but few words can be put on a line." The effect of too large a type is to increase unnecessarily the number of movements and pauses. A line from 75 to 85 mm., or about a third longer than the ordinary line of the New York dailies, with type 1.15 mm. in height, combines many advantages.

(11) The chief factor in determining the fixation pause seems to be the unit of apperception. This unit is small in the case of numerals, abbreviations, connective elements, and long in the case of nouns, adjectives, verbs, and familiar phrases. A new fixation is made for each unit of apperception.

7. *The Meaning of Words is Largely Motor.*—

Miss Adelaide M. Abell, in *Educational Review* for October, 1894, reports the results of experiments in reading upon Wellesley College girls. The girls were told to read a short story at a given hour and to time themselves. A few hours later they were asked to reproduce the story as nearly *verbatim* as possible to test comprehension and memory. The result showed that the slowest reader required six times as much time as the fastest. It showed also that slow readers "gain by slowness" and that comprehension does not depend upon whether one reads slowly or rapidly. In spite of this conclusion, Miss Abell ventures what appears to me the illogical opinion that lip-movement is a hindrance, and should be discouraged in children.

Huey tested twenty graduate students in a university, all of whom were necessarily extensive readers. The range of rate was from 2.5 words per second to 9.8 words. "Lip-movement was usual with only two or three of the twenty readers, but one of the fastest readers tested was a lip-mover."¹ This shows that the prevalence of the motor process is not the sole cause of slow reading. Such elements as general habits of visual perception, prac-

¹ *The Psychology and Pedagogy of Reading*, The Macmillan Co., 1908, p. 175.

tice in reading from childhood, power of concentration, and mental alertness are recognized by Huey as factors in the reading rate. Romanes¹ confirms the conclusion that rapidity of reading is not necessarily accompanied by brilliancy of intellect. "There is no relationship," he declares, "between rapidity of perception . . . and intellectual activity, for I have tried the experiment with several highly distinguished men in science and literature, whom I found to be slow readers." After a detailed account of certain experiments on interpretation of what is read and the nature of meaning, Huey says: "We may safely conclude, then, that meanings in reading are mainly feeling-reactions and motor attitudes attaching most intimately to or fused with the inner utterance of the words and especially of the sentences that are read. And with the utterance in which the meanings mainly inhere, we must include the movements of emphasis, of inflection, of gesture, and of expression generally. . . . The feeling of these bodily postures, attitudes, gestures, etc., may well furnish the very body of much that we call meaning."²

¹ *Mental Evolution in Animals*, George J. Romanes, D. Appleton & Co., 1893, p. 136.

² *Op. cit.*, p. 167.

Here we are face to face with a new fact, which has evidently been overlooked by all those who have advised us to discourage lip-movement, and have even endeavored to eliminate altogether the vocal image of the word. Such a procedure they call short-circuiting the association between the visual word and its meaning. But now we are confronted by the remarkable statement from one of those who himself is opposed to lip-reading *that meaning itself is motor*. When, therefore, we eliminate the articulation of words, we destroy a part of their meaning; and thus the teacher who undertakes to make the direct and simple association between the visual image of the word and its meaning, will find his task impossible. "There can be little doubt," says Huey,¹ "that the main meaning comes to consciousness only with the beginning of the sentence-utterance, and the reader does not feel that he has the complete sense until he has spoken it."

8. *Posture of Pupil*. — An important part in oral reading is the muscular control involved in the posture of the pupil. One difficulty of the reading teacher is that children are timid. They are afraid of their own voices. Their classmates, unable to

¹ *Op. cit.*, p. 147.

hear them, are liable to lose interest, and then the reading hour becomes flat and unprofitable. To avoid this serious result, the teacher should start by teaching the children how to stand. They may be called one by one to stand in front of the class, to plant themselves firmly upon two feet, with heels together, chest high, and body erect. Then they should be directed to look squarely into the eyes of the audience. After several attempts they can do this without flinching. In this way they secure courage and a sense of power and repose. Without the possession of this feeling of confidence, no pupil can read well. Sometimes a child may step to the front and read. If this consumes too much time, let the pupil face in the direction of the largest portion of the class. He must understand that oral reading is for the purpose of pleasing and instructing others; and therefore he must endeavor to speak with force sufficient to enable all to hear him. But he must on no account be permitted to go to the other extreme and yell. He must be taught by example that force is not identical with noise, and that there is a way of making one's self heard even with the use of ordinary conversational tones.

CHAPTER III

PRINCIPLES DEDUCED FROM THE PSYCHOLOGY AND PHYSIOLOGY OF READING

1. *From Psychology*

(1) Various stages may be distinguished in a child's acquisition of language. One of these is the "babbling" stage, when he uses his vocal organs as a plaything. This instinct accounts for the universal popularity of *Mother Goose* rhymes among children. When the child repeats these rhymes, with or without meaning, he trains his powers of speech, even as he develops his muscular system by physical play.

(2) Gesture, tone, and inflection play an important part as auxiliaries of speech, especially during the "chattering" stage. These same elements are essential later to the appreciation and proper rendering of reading matter.

(3) The number of verbs used by a child is relatively much larger than in the case of an adult. The child imitates movements before sounds and ex-

presses many actions by gesture. These considerations exhort us to put the emphasis, in early reading matter, upon *doing*, *action*, *movement*; hence the popularity of fairy tales, myths, and fables, all of which have the narrative form.¹

(4) The number of words in a child's vocabulary varies greatly in different individuals, but is larger than is commonly supposed. A child of two may know ten or fifteen hundred words. In the first year of school, children may learn to recognize as many as two thousand printed words.²

(5) There is a vast difference between *oral* language and *visual* language. The former is instinctive, and self-acquired; the latter is artificial, and requires a teacher. About the only instincts the reading teacher can appeal to are the play instinct and the social desire for approbation. Reading is essentially a form of association; hence the following laws of association must be employed in our teaching of reading: —

(6) *Frequency*. — The recall of an impression depends upon the number of times a connection has been made between the terms that are associated.

¹ See *The Action Primer* by Thomas O. Baker, American Book Co.

² See chapter on "A Quantitative Study of Reading."

Hence the necessity for constant review and drill in the mechanics of reading.

(7) *Vividness*. — The intensity of the first impression is an important factor in subsequent recall. In teaching reading, much of the success depends upon the skill of the first presentation. The vividness of the impression depends upon the nature of the stimulus, — the clear and forceful appeal, — the interest in the subject, and the emotion accompanying the impression.

(8) *Congruity*. — Congruity of the emotional tone of an impression and the mood we are in controls the course of associations. This principle exhorts the reading teacher to create a suitable atmosphere before undertaking to present a piece of literature.

(9) *Interest*. — That in which we are most interested makes the deepest and most abiding impression. Therefore the reading teacher, by skill of method and fitness of subject-matter, must appeal to the interest of the child.

(10) *Voluntary Association*. — Not all association is controlled by the mechanical principles already enumerated. The highest type is voluntary. This means that by an effort of the will we can determine our mental movements. When so controlled, the

process is called thinking or studying. One of the highest functions of teaching is to keep the children in control of their associations.

(11) Silent reading alone is not sufficient. The muscular image of expression is an important part of meaning, and is an essential element in the process of learning.

2. *From Physiology*

(12) The motor, sight, and hearing areas of the cortex reach the maximum of fibres during the second year. The speech centre keeps on increasing its fibres rapidly until the eleventh year, and more slowly until the thirty-ninth year. From these facts we infer that in teaching a child to read we should employ as far as possible his motor activities. We infer also that the age of twelve is a more favorable time to begin the study of foreign languages than fourteen.

(13) The principal truth about a word is that it is the result of a voluntary act of the mind. Apart from the thinking mind it has no existence. Broca's Convolution seems to be essential to the expression of words. When this is destroyed, vocal or written utterance is impossible. These facts emphasize the necessity of keeping children in the voluntary control

of their associations when we are teaching them to read. (See Principle 10.)

(14) A child learns to speak by instinct and without formal teaching. Reading and writing are not instinctive; practice and drill must supply artificially the conditions that nature provides in oral speech. (See Principle 6.)

(15) The "meaning" of a spoken or written word is registered on a distinct cortical area. Oral speech makes a connection between the *heard* word, the *spoken* word, and the *meaning*. Teaching a child to read is to add the *seen* word to this complex of associations.

(16) Only one-half of the brain is educated in speech. Which half shall be thus trained is determined or indicated by left-and-right-handedness. The hand that the child uses most for every purpose, including gesture, indicates whether he will educate his left brain or his right brain. Right-handed people educate the left hemisphere; left-handed people educate the right hemisphere. Thus we see the vast importance of gesture as a principal mode of speech before the acquisition of words. (See Principle 2.)

(17) The eye in reading moves along the line in steps, the steps varying in size and duration accord-

ing to circumstances. These considerations are important as bearing on the length of line and size of type in reading books for beginners.

(18) Adults in reading do not attend to individual letters, but recognize them in groups. This important fact suggests the propriety of teaching to beginners sight words as wholes, and condemns the alphabetic method of teaching reading.

(19) The muscular movements of articulation, like the movement of the eyes in reading, represent words as wholes. This fact is further confirmation of Principle 18.

(20) The steps of the eye across the page are shorter in the case of children than of adults. This shows that the grouping of word-elements into thought-wholes is a matter of development. Constant effort must therefore be made by the reading teacher of the lowest grades to get the children to read thought-groups rather than word-units.

(21) The eye has a tendency to form short-lived motor habits. There are fewer pauses if the lines are short, of uniform length, and of equal indentation.

(22) Experiments have shown that the meanings in reading "are mainly feeling-reactions and motor

attitudes"; that the utterance in which the meanings mainly inhere consists of emphasis, inflection, gesture, and expression generally. All this points to the importance of oral reading. (See Principle 2 and Principle 11.)

CHAPTER IV

THE ENDS OF READING

1. *Twofold Aspect of Reading.* — In our consideration of primary reading, we must at the outset keep in mind two distinct phases of the subject; namely, the mechanics of reading, and reading as literature. These two problems are different in kind, yet are intimately related; for learning to read is more or less of a drudgery, since it involves endless repetition and drill and downright hard work, while reading as literature is mainly the pursuit of pleasure. Reading will refuse to yield its pleasures until the mechanical difficulties are mastered. But within recent years we have discovered that by employing suitable literary material in the beginning, we can facilitate the learning of the pupil and relieve the tedium of mechanical drill.

2. *Primary: The Mechanics.* — (1) *Instant Recognition of Speaking Vocabulary.* — The object of reading in the first years of school is to train pupils to recognize, pronounce, and interpret, with facility

and accuracy, the words of the printed or written page. The words employed during the first two or three years are taken largely from the child's oral vocabulary. Therefore he is to be occupied in recognizing familiar words in their new disguise.

Reading is to be looked upon not as an end in itself, but as a means of acquiring knowledge and pleasure from books. A pupil may have a certain mechanical fluency in reading without knowing much of what he reads; but he cannot successfully study any other subject unless he can read understandingly. A good reader can get, easily and rapidly, the contents of a book; but to make one's self master of a printed book is what we call studying. Therefore, no matter what the subject of study is, if the lesson consist in mastering a book, the poor reader is always at a disadvantage. Twenty teachers were asked each to write the names of ten boys who had the poorest records in lessons, and to indicate the character of their reading. Of the two hundred poor scholars thus selected, 63 per cent were put down as poor readers and only 27 per cent as good readers. This is an illustration of the important relation the art of reading bears to other school work.

(2) *Analysis of Words into Phonic Elements.*—

Another object of primary reading is to train pupils to pronounce words with accuracy, ease, and proper force. This necessitates attention to phonic drills. Words are to be arranged into short sentences from the first, and children are to be trained to read these naturally and fluently. The drills are to be first on reading entire sentences with expression and clearness; then on careful pronunciation of whole words; then of syllables; and finally of individual sounds. The individual sounds may then be put together again into syllables and words. When this stage of analysis and synthesis has been reached, it is time to teach the names of the characters which represent individual sounds.

As to the order in which the elements of oral words and their corresponding written symbols should be taught, there is an almost infinite variety of opinion. Some would teach vowels first, some consonants. Some good authorities prefer to begin with the short vowels, because words containing long vowels usually have silent letters, *e.g.* pat, pate; hat, hate; kit, kite; rat, rate; rod, rode; pet, Pete. But others offer good reasons for beginning with the three long vowels *a, e, o*, and the six consonants *f, l, m, n, r, s*. Ward prefers these sounds because they

may be indefinitely prolonged, and may be easily distinguished in any blending of two or more sounds. They thus lend themselves easily to phonetic reading. To me the order of teaching these elements does not seem to be a matter of great moment. But it is important that we recognize the necessity for the work, that we do it at the proper time, and do it with sufficient thoroughness. My experience with reading teachers has brought me to the conclusion that the sooner the child learns these phonetic elements, the more rapid will be his progress in reading. For, as soon as he knows the sounds of letters and the value of diacritical marks, he is able to pronounce unfamiliar words without the aid of a teacher.

At this point I venture a digression to consider the question whether the reading teacher should begin with script or print. Some begin with one, some with the other, and a few with both. The majority of successful first-year teachers known to me prefer to start with script. They claim that it is easier to pass from script to print than from print to script. It is usual to devote two or three months to script, then turn to print, so that by the middle of the first term or half-year, the child shall be able

to read out of a book, the preliminary work having been done on the blackboard or from charts.

(3) *Recognition, Representation, and Pronunciation of Phonetic Elements*.—When we reach the stage where words are analyzed into their individual sounds, it is necessary to begin the use of diacritical marks. If the language were phonetic and each sound were represented by a single character, such marks would be unnecessary. But in English we have some forty sounds and only twenty-six characters to represent them. Our alphabet comes with some modifications from the ancient Phœnicians. The alphabet doubtless represented more or less accurately the oral and written elements of the ancient language. But when we adopt this ancient, Oriental alphabet and try to fit it to our modern language with its new sounds, we find ourselves in difficulty. A so-called scientific alphabet has been prepared by the American Philological Association, which provides a separate character for each sound. This alphabet is used by the Standard Dictionary. But its adoption has not become sufficiently general to warrant its use in primary reading. There is therefore no option but to fall back upon diacritical marks. The extent to which these marks should

be employed is a point upon which a wide divergence of opinion exists. Many, like Sarah Louise Arnold and Superintendent Brumbaugh, consider them a necessary evil, to be tolerated only when their presence is indispensable. Others, like Ward, have built up very elaborate systems of marks, which constitute essential features of their methods. There are some hundreds of thousands of words in the English dictionaries, but there are only forty sounds, as we have seen. While it is well to begin reading by teaching whole words, it is manifestly impossible to learn to recognize each word separately, since there are so many that it would require all the school time to learn them in that way. An analysis shows that a comparatively small number of phonetic combinations enter into the composition of all words. These elements are known as phonograms, and, after they have been mastered, thousands of words not previously learned may be read by the pupil. It is undoubtedly true that children acquire unconsciously the laws of pronunciation; and the writer is of those who regard diacritical marks as, upon the whole, a nuisance. We do not believe it is necessary to deface the text of a reading book by the use of any

marks whatever. New words may be taught in columns at the beginning of a lesson, and in these the individual sounds may be marked. We are prepared to indorse the statement of Miss Arnold, that diacritical marks should be used only when they are necessary to pronounce words, and that when children can pronounce without their assistance, they should, by all means, be allowed to do so. Marks are but means to an end, and if the end can be reached as successfully without them as with them, we must take counsel from common sense and omit.

(4) *Synthesis of Phonetic Elements into Words.* — A variety of exercises may be employed in mastering the phonetic elements of our language. The beginning will be analytic. Sight words have been taught as wholes. These will be analyzed into their constituent sounds. The elementary sounds will then be separately pronounced and represented by the proper diacritical marks. Daily drills will be required to make this work thorough; for unless it is well done, the time spent on it is wasted. To vary the drill, elements may be combined again by the children into significant words. This is what Ward calls the "blend." Both the analytic and

synthetic exercises should be a part of the daily drill. Familiarity with diacritical marks may be imparted by requiring pupils to mark known sounds in familiar words, and by marking unfamiliar words and requiring pupils to pronounce them. By the way of test, the teacher may secure pleasing variety by a sort of game in which pupils are required to pronounce known words in new ways in accordance with diacritical markings, *e.g.*, Kăṭ; Kăṭ; Kăṭ; Kāṭ; Kăṭ; Kăṭ; Kăṭ; Kăṭ; Kăṭ; I saw mēn mēn pēt Pēt.

(5) *Meaning of Unfamiliar Words.* — Most of the words in the reading of the first year or two should, as stated above, be chiefly such as are already familiar to the child. But, as the primary school is understood to cover the first four years, there must necessarily be many new words in the reading lessons. It is of the utmost importance that the meaning of these be properly explained and illustrated, so that they may be interpreted by the child's experience and imagination. This remark applies with especial emphasis to information lessons, such as history, geography, nature, and even arithmetic. Children can get no knowledge from books whose words are enigmas; and frequently children fail in

number work because they have not been properly trained in arithmetical language.

(6) *Spelling*. — Word analysis and synthesis naturally leads to spelling, which from this time forward must receive careful and persistent attention. During the first year, the spelling may be informal and incidental. The child during this period is not required to write much. But during the second year simple exercises in spelling may be given. The child has now learned to write his name, and is able to do a little useful work in copying and dictation. For this work spelling is required.

3. *Primary: Reading as Literature*. — It is manifest that the literary aspect of reading is a very different thing from the mechanical aspect. The one has to do with form, the other with content. The one is a tool; the other is the very substance of culture and an end in itself. Literature is a form of beauty, like a Raphael Madonna, and "beauty is its own excuse for being."

(1) *What to Read*. — Dr. Hall in the following paragraph does not overstate the importance of the subject-matter of our reading in the schools: —

"Among the most serious of the pedagogic problems of the present are, therefore, I believe, first, the

selection in the focus of the best intelligence, of the best reading material for children and youth; secondly, the experimental gradations and often transforming adaptation of it, each to fit age and grade; and thirdly, the elaboration of the most effective ways of teaching it with all energy and force.”¹

It would be quite impossible, even if it were desirable, to undertake here to lay down a specific course of reading appropriate for the different grades and ages of school children. The material is so abundant and men's tastes, culture, and habits of thought differ so widely, that no list of books which any human being, however gifted, could select, would meet the approval of a majority of educators. What one can do, however, is to indicate the principles which should guide us in our selections. All will admit that the mere caprice of the schoolmaster is not a sound basis of choice, nor is the opinion of any adult to be relied upon, however excellent it may be as to the literary quality of books in prescribing the reading matter for children. If interest is any criterion of the success of educational work, the children themselves must be consulted in the choice of reading. Of course, children's tastes are

¹ *How to Teach Reading*, G. Stanley Hall, Heath & Co., 1886, p. 34.

not the only basis of choice, for, undirected, these are satisfied with trashy and harmful books quite as readily as with good ones. The adult may be allowed to decide what kind of reading is required to fit the child for "complete living" and may also be the final authority on the literary quality of the books; but among the materials thus accepted for school use by the adult judgment, the child should be allowed free choice, governed only by his own taste and his own sense of need and fitness.

(a) *Interest*. — A number of investigations have been made in recent years that throw much light on this reading problem; the results, though meagre and inconclusive, indicate the direction in which our efforts must tend if we are to substitute a scientific basis of choice for a dogmatic one. A study of children's stories by Clara Vostrovsky,¹ shows that there is a vast difference between a child's way of saying a thing and an adult's way, even¹ when the latter is writing for children. After quoting a story as written *for* a child, and the same as told *by* a child, Miss Vostrovsky says: "In comparing the two, the difference between them is at once apparent. In the child's story no sentiment is expressed; nor are

¹ *Studies in Education*, Stanford University, 1896-1897, p. 15.

his own feelings referred to in any way. There is little of the æsthetic, no description of dress or persons; and not general, but quite definite, names are used by him. On the whole, the child gives facts, and lets life itself speak for him." The various elements of children's stories predominate in the following order: *action, names, speech, appearance, place, time, possession, feeling, dress, æsthetic details, sentiment, moral qualities*. The last five combined constitute a mere trifle as compared with the element called "action." The inference drawn from these facts is that "stories for children should be true stories of child life, dealing with the holidays, etc., . . . and should be mainly confined to action, with little description of persons or feelings."

It is proper to add that the age of the children in this experiment was from six to eight. In a study of children's reading tastes, made by the same author,¹ the conclusion is reached that there exists the most marked difference between the sexes. "Girls prefer domestic stories, especially stories about children like themselves, while boys care more for books of adventure. . . . No boy confesses to a purely girl's story, while girls frankly do to an

¹ *The Pedagogical Seminary*, Vol. 6, p. 523.

interest in stories about boys. Women writers seem to appeal more to girls, men writers to boys."

Mr. Clark Wissler, director of the psychological laboratory in the Ohio State University, has made an interesting inquiry into the interests of pupils in the reading of the elementary schools.¹ Children were asked to write the subjects of all the reading lessons of the preceding year that they could remember; to state which of these lessons they liked the best, and why; and to name the book they would buy if they could have only one. Papers were collected from 1950 children, — 1060 girls and 890 boys.

As to the kind of lessons remembered, the returns show that the first is always remembered; nearly all the lessons remembered are in terms of experience the child can realize in himself; the lessons remembered most are especially natural or lifelike. The lessons that are remembered by none of the children are the merely instructive lesson, the moral lesson, and abstract poems concerning duty, happiness, and the like.

The returns on the third question confirm sex

¹ "The Interests of Children in the Reading of the Elementary Schools," *The Pedagogical Seminary*, Vol. 5, p. 523.

difference indicated by Miss Vostrovsky. Mr. Wissler says: "Among the works of fiction chosen by girls are many books that portray the home-life. . . . Many boys prefer fiction reciting the exploits of the adventurer in the garb of the scout, the explorer, the soldier, etc." Among the additional conclusions of the study are these:—

The literature most appreciated presents the true, the beautiful, and the heroic and the good in a concrete way.

The complete narrative makes a lasting impression, while the story in outline is treated as uninteresting.

A further study on this subject made by Professor E. A. Kirkpatrick confirms some of the preceding conclusions and brings out a number of new points. For instance, the sexual differences already noted are strongly emphasized by Professor Kirkpatrick. "As to the kind of reading," he says, "the sexual differences are most marked, and the degree of difference in all grades is surprisingly large. . . . Boys read about twice as much history and travel as girls and only about two-thirds as much poetry and stories. . . . Teachers are almost unanimous in saying that boys care more for history and stories

of travel and adventure, while girls care more for stories of simple life. . . ."¹

The dozen most popular authors or books, according to these returns, stand in the following order:

1. "Black Beauty"; 2. Louisa Alcott's "Little Men," "Little Women," etc.; 3. Stowe's "Uncle Tom's Cabin"; 4. "Robinson Crusoe"; 5. Longfellow's poems; 6. Burnett's "Little Lord Fauntleroy," "Editha's Burglar," "Sara Crewe"; 7. Dickens's "Old Curiosity Shop," "Oliver Twist," etc.; 8. Andrews's "Seven Little Sisters," "Ten Boys," etc.; 9. "Beautiful Joe"; 10. Scott's "Ivanhoe," "Lady of the Lake," etc.; 11. Wiggin's "Birds' Christmas Carol," etc.; 12. Hughes's "Tom Brown."

Among the general conclusions are the following:—

"Objective incidents, actions, and specific terms are what the child notices, and these rather than general terms, subjective states, . . . are what impress children in a story."

"Interest in fairy stories is at a maximum at about nine years of age, . . . while at about twelve interest in history begins to dominate, at first in the form of biography and pioneer history stories."

¹ "Children's Reading," by E. A. Kirkpatrick, *The Northwestern Monthly*, December, 1898, January and March, 1899. J. H. Miller, Lincoln, Neb.

“There is nothing more certain than that boys of thirteen or fourteen are especially interested in adventure, . . . while quieter stories and sentimental stories are often preferred by girls of this age.”

Summarizing the conclusions of all these studies, we have the following criteria to govern teachers and principals in the choice of books and authors in the making and editing of school readers : —

1. A child of from six to eight years of age appreciates no sentiment, does not care for subjective analysis or description, has little æsthetic taste, wants specific names (not general), and is satisfied with concrete facts which speak for themselves.

2. The elements of a story which appeal to children of four, six, and eight years of age follow in importance this order: *action, names, speech, appearance, place, time, possession*, etc.

3. There is an important sex difference in the reading taste. Girls prefer domestic stories written by women, while boys, especially at about thirteen or fourteen, love stories of adventure and heroism written by men.

4. Only those reading lessons make a lasting impression upon the child which are in terms of his own experience.

5. Children detest preaching or moralizing, preferring to be taught indirectly by concrete stories.

6. Children require complete narratives. Fragmentary poems and stories in outline are treated as uninteresting.

7. Children are fond of stories that treat of animals, particularly those that represent animals as speaking and feeling like human beings. They are also deeply interested in stories about children.

8. Young children care little for humor, but appreciate the pathetic.

9. Interest in fairy tales culminates at nine.

10. At twelve interest in history begins to dominate, biography and pioneer history being the forms at first preferred.

11. Mere information has no attraction for the child. Reading must appeal to his feelings and imagination and possess human interest in order to make a deep and lasting impression upon him.

(b) *Other Qualities.* — Such are a few of the qualities that seem to be demanded in our reading material in the light of our meagre knowledge of the child's nature and development.

In addition to these psychological tests of reading matter there are a few pedagogical ones, based on

common sense and practical experience in the class room; and these, it will be seen, in every instance confirm and supplement the criteria already enumerated.

Every teacher knows from experience that one requisite of a successful reading lesson is that the subject-matter shall come within the comprehension of the pupil. It must not be abstruse or abstract, nor must it deal with matters entirely outside the experience of childhood. This does not mean that children are wholly incapable of appreciating the merits of genuine literature. On the contrary, a child of seven can understand portions of the story of Hiawatha in the language of the poet; in fact, I believe children greatly prefer the original poetic form. There is an indefinable charm in the poetic diction, the unique repetition of phrases, which attracts children of all ages. In order to come within the comprehension of our pupils, reading books need not necessarily be commonplace and matter-of-fact. The subject-matter should be of such a grade of difficulty that the pupil has some work to do, some effort to make, in order to appreciate it. Otherwise, there is no educative activity involved in his reading. As Mr. Chubb says, "The child will

leap many a forbidding word-fence, if he is genuinely interested in the subject-matter." It would appear, therefore, that the so-called lessons of information on science, history, and geography, often found in grade readers, are out of place. This sort of information should be imparted through supplementary reading in connection with other subjects, and the reading period proper should be devoted to the study of real literature. Dr. Hall sums up this part of our subject in an admirable paragraph: —

"It is assumed, then, that we must have stated or stataric readers, uniformly punctuated, containing nothing merely petty or individual, and its reading must not be degraded as means to other ends, but must be of central importance, and the best test of the teacher and the school work. We must have regard chiefly, at first, in compiling readers and in using them in school, not to method, as we have been too wont to do, but to subject-matter, to content, and its wide bearings. Nothing, again, brings out good reading like the comprehension of it, involving direct innervation from the higher cerebral centres. Yet we must here avoid selections the full meaning of which can be immediately comprehended and conveyed. The mind must grow slowly up to

it by many repetitions; it must be felt and its drift vaguely caught before as a condition of the correct and healthy action of the intellect upon it.”¹

The studies quoted above and others like them were undertaken to ascertain what is normally interesting to children at different ages. There are two or three possible attitudes to be taken with reference to children. We may assume that their natural instincts and tendencies are upon the whole good and a safe guide for educational method and policy. Or we may assume, as the old theologic ideal did, that the child is all wrong and the aim of education is “to repair the ruins of our first parents by regaining to know God aright, and out of that knowledge to love, imitate, and be like him.”² Or we may borrow some philosophical or sociological ideal to which the child is to conform. But whether we take the one position or the other, a knowledge of what actually is the natural bent of the infant soul is necessary.

In this matter of reading, shall we trust altogether the interests of the children, or shall we disregard altogether their desires and compel them to conform

¹ *How to Teach Reading*, G. Stanley Hall, D. C. Heath & Co., Boston, 1886, p. 26.

² Milton, *Tractate on Education*.

to what we think is best for them, or shall we take some middle ground? I have already indicated a possible mode of procedure by demanding that the adult's judgment shall prevail as to the literary quality of books. After excluding all unworthy material, there is still enough left to satisfy almost any sociological or philosophical ideal; and within the bounds thus set the child's liberty of choice should be respected. Otherwise we can have no guarantee that the pupil will have any genuine interest in his reading; and from the point of view of the teacher's experience, a reading lesson cannot be successful unless it is interesting.

(c) *Adaptations*.—Many productions possess the qualities children demand, but are nevertheless upon the whole unsuitable for school use. These can often be made to fit school conditions by judicious "adaptation." Some literary gems are so perfect that it would be a sacrilege to touch them. These are not to be discussed but committed to memory. No one would wish to tamper with Gray's "Elegy" or Tennyson's "Charge of the Light Brigade." But it might be quite possible to adapt one of Andersen's fairy tales or a Greek myth in such a way as to render it more acceptable to the heart of an American child.

One method of adapting such material consists in repeating stories to children and securing oral or written reproductions from them. By comparing these reproductions with the originals it is easy to ascertain which elements possess interest and which do not. Parts of the story that are omitted by all children evidently are not interesting; while those portions which are reproduced by all or most possess the greatest interest. In rewriting the story the interesting material only is employed, and in this way the material is "really and closely fitted to the minds and hearts of the children."¹

These remarks, however, must not be understood to apply to any stories that have reached a classic version. "The easy-word transliterator has much to answer for in his alterations of classic story into one and two syllabled absurdities for the tender digestion of the child."² If a given piece of literature is too difficult for a given grade, the remedy is not an easy paraphrase, but the postponement of the reading until a later grade.

Finally, let me add that much of the staple literary diet of the primary grades should be poetry, because

¹ Hall, *How to Teach Reading*, p. 32; see *Old Time Stories*, by E. Louise Smythe, Werner & Co., Chicago, 1896.

² Chubb, *The Teaching of English*, The Macmillan Co., 1909, p. 86.

in the literary evolution of mankind verse precedes prose, and the child's apprehension of the universe is essentially poetic. "When history and other information studies have done their work on the information side, poetry may do its on the imaginative and emotional side." ¹

4. *Grammar: The Mechanics of Reading.*—In the lower grammar grades the phonetic drills should be continued, and in the higher should gradually lead to the rendering of certain typical forms of literature with artistic effect. The meaning and use and spelling of words is of course also continued. By this time, however, the purely colloquial vocabulary gives way to the diction found in works of standard authors, and henceforth we add to the objects of reading already enumerated an appreciative study of such works with a view of cultivating a taste for good literature. After the third school year, the pupil should have sufficient facility in reading to use it in acquiring knowledge. That is, reading ceases to be chiefly a tool-making operation and is gradually transformed into a tool-using process. Almost from the first day of school, drills in the recitation of good prose and poetry, with clearness, emphasis, dignity, and

¹ Chubb, *op. cit.*, p. 83.

impressiveness, should form a regular adjunct of the reading exercise.

Another exercise that now becomes necessary is the study of the derivation of words and the meaning and use of affixes. These bear the same relation to the study of the meaning of words that phonetic drills bear to pronunciation.

Gradually, as a means of emancipating himself from the supervision of the teacher, the pupil must learn the use of the dictionary. When he comes upon a new word he must learn to ascertain its meaning without assistance. The diacritical marks which he learned in the primary school will enable him to use the dictionary also as a standard of pronunciation.

(1) *Supplementary Reading.*—Within recent years, especially since the “enrichment” of the course of study suggested by President Eliot and the Committee of Ten, supplementary reading has formed an important part of the school programme. Instead of pattering for an entire year over a single primer or first reader, the first-year classes in a good school will read half a dozen or more books. In every subsequent grade supplementary readers in literature are provided, and in the appropriate grades

also readers in history, geography, nature, hygiene, etc. The object of supplementary reading may be summed up under three heads: *Information, Inspiration, Taste.*

(a) *Information.*—The word *supplementary* implies that something is incomplete which may be made so by this kind of reading. There is first the incompleteness of knowledge. One has not time in the regular lessons of the class room to give the pupil that full and many-sided information which he needs. Even if the teacher had the time, the necessity for self-activity and self-direction on the part of the children would have to be met. The teacher is but a temporary guide and helper; in a very few years his assistance will be withdrawn, and then the pupil must depend for the rest of his life upon himself. Therefore, as it has been said of old, the principal duty of the pedagogue is to make himself useless. This he can do only by training the pupil as soon as possible to take care of himself. Supplementary reading is one way of contributing to this important result. Here the pupil may read an entire chapter or book by himself, being held responsible at the conclusion for some account of what he has gathered. Or he may be told to get information of a certain sort

and be required to find it and work it up for himself. Such reading therefore supplements the knowledge of the textbook or of oral teaching by adding new facts and new points of view ; and it supplements the *teaching method* by throwing the pupil upon his own resources and thus contributing to his intellectual emancipation.

(b) *Inspiration*.—There are some books that are valuable not so much for the facts they contain as for certain emotions and enthusiasms they arouse. Such are the books of John Burroughs, Gilbert White, and Thompson Seton in nature study. Books of this sort may properly be included in the supplementary list. In fact, the writer is inclined to the opinion that we have overestimated the knowledge value of books and undervalued the inspirational function. “I actually found out,” writes Hugh Miller,¹ “for myself that the art of reading is the art of finding stories in books. Those intolerable nuisances, the useful knowledge books, had not yet arisen, like tenebrious stars, on the educational horizon, to darken the world.” In this class fall works of the imagination, — stories, fables, fairy tales, myths, legends, etc., all of which are intensely interesting to children.

¹ *My Schools and Schoolmasters*.

(c) *Taste*. — Finally, supplementary reading of the right kind cultivates a taste for good literature by supplying standard books so entertainingly written that the pupil will want more of the same kind. The taste grows by what it feeds on. Our friends, the Herbartians, have a saying that it is better to send the pupil out into the world with a definite and well-formed *interest* than to fill him up with a required quantity of facts. So, if we form a taste for good reading, we need have no fear for the future education of the pupil.

5. *Grammar: Reading as Literature*. — (1) *What to Read*. — Let it be repeated here that reading has by this time become a means of gaining and giving knowledge and pleasure from books. The pupils are from ten to fourteen years of age. The mechanical difficulties have been largely overcome, and a certain fluency has been acquired. The intelligence and capacity of the pupil have reached a stage of development which makes it possible to read literature of good quality, of considerable length, and of a fair degree of difficulty. Complete masterpieces are demanded, both by common sense and the findings of psychological research. History of pioneers and other heroic characters is a dominating interest

at the age of twelve and onward. "It is this literature of distinctly epic type that will interest him more than any other, and be good for him. Adventure and romance, heroism and daring, the wonders and excitement of travel and exploration, of march and siege,—upon these we may feed him. . . . So we shall broaden his world and enlarge his sympathies . . . before he begins that adolescent work of introspection and self-analysis which tends to contract for a time his interests and sympathies."¹

Among the specific works which may be read with profit in the grammar grades, the following may be mentioned: Kingsley's "Greek Heroes"; Hawthorne's "Wonder Book"; Lamb's "Adventures of Ulysses"; Ruskin's "King of the Golden River"; also the following poems: "Casabianca"; "Lucy Gray"; "The Wreck of the Hesperus"; "Miles Standish"; "Tales of a Wayside Inn"; "The Lays of Ancient Rome"; "Sohrab and Rustum"; "The Merchant of Venice"; "Julius Cæsar."

We may also include some humor. The young child lacks this sense; but in the middle and higher grades the pupil will appreciate the works of Mark Twain, Holmes, Saxe, Hood, Stockton, and Kipling.

¹ Chubb, *The Teaching of English*, The Macmillan Co., 1909, p. 125.

Three classes of works should, says Mr. Chubb, be excluded from the elementary school; namely: those that deal reflectively with the sentiment of adult love, *e.g.* "Enoch Arden"; those that are surrounded with an atmosphere of gloom, *e.g.* some of Hawthorne's stories; those that lead to the solemn and darker mysteries of life, *e.g.* "The Christmas Carol."¹

6. *The High School.*—The only object of reading in the high school is the study and appreciation of literature. This, however, implies several subordinate aims, such as the meaning of words and sentences, and the principles of grammar, rhetoric, and composition. The requirements of the College Entrance Examination Board for the Middle States and Maryland are a fair illustration of the scope and aim of reading in the secondary schools of the country. The following analysis of the requirements in English are quoted from the Board's *Plan of Organization*:² —

"(a) *Reading.*—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the

¹ *Op. cit.*, p. 129.

² *Plan of Organization of the College Entrance Examination Board for the Middle States and Maryland*, adopted May 20, 1900, N. Y., 1900.

subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. The candidate is expected to read intelligently all the books prescribed. He is expected not to know them minutely, but to have fresh in mind their most important parts. *In every case knowledge of the book will be regarded as less important than the ability to write good English.* In preparation for this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric."

Books, 1901-1902: *Merchant of Venice*; Pope's *Iliad*, Books I, VI, XXII, XXIV; *Sir Roger de Coverley Papers*; *The Vicar of Wakefield*; *The Ancient Mariner*; *Ivanhoe*; *The Last of the Mohicans*; *The Princess*; *The Vision of Sir Launfal*; *Silas Marner* = 10.

"(b) *Study and Practice.* — This part of the exami-

nation presupposes the thorough study of each of the works named below. The examination will be upon subject-matter, form, and structure. In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong."

Books, 1901-1905: *Macbeth*; *Lycidas*, *Comus*, *L'Allegro*, *Il Penseroso*; *Speech on Conciliation*; *Macaulay's Essays on Milton and Addison* = 4.

Recommendations: —

"2. That the prescribed books be regarded as a basis for such wider courses of English study as the schools may arrange for themselves."

"4. That a certain amount of outside reading, chiefly of poetry, fiction, biography, and history, be encouraged throughout the entire school course."

"7. That each of the books prescribed for study be taught with reference to —

"a. The language, including the meaning of words and sentences, the important qualities of style, and the important allusions;

"b. The plan of work, *i.e.* its structure and method;

"c. The place of the work in literary history, the

circumstances of its production, and the life of its author."

These provisions remain in force to-day substantially as they were first adopted twelve years ago. The only change is in naming a larger list of books from which to choose. The requirements for 1910-1911 prescribe forty books for "reading," ten of which must be selected, and six books for "study and practice," four of which must be chosen.¹

¹ The Board's examinations are now accepted as a satisfactory basis for admission by every college and university in the United States; but some colleges still continue to hold their own examinations. In June, 1911, the Board examined 4096 candidates, while between five and six thousand candidates took the separate examinations. — See *Educational Review*, February, 1912, "The College Entrance Examination Board," by Thomas S. Fiske, Columbia University.

CHAPTER V

METHODS OF TEACHING READING

1. *The History of Method in Reading.*—The history of method in reading naturally falls under two heads,—reading material and how to teach reading.

(1) *Reading Material.*—The modern era in the pedagogy of reading begins with the Reformation. The first school readers in this period were distinctly religious. One by Ickelsamer, for instance, contained the Ten Commandments, the Creed, the Lord's Prayer, the Magnificat, and the Benedictus. Basedow is credited with a reform in the shape of a primer in which the children read of things pleasant to eat and to see, such as almonds, raisins, and apples. They learned German and Latin by means of play, and were rewarded with sweetmeats when they did good work. Eberhard von Rochow issued a reading book in 1776 containing moral tales, illustrating the virtues of politeness, modesty, and the like. The author advised that the simple sounds be taught first in connection with the written and printed

names of familiar things. He laid emphasis upon oral work as a preparation. His book reached a circulation of one hundred thousand. Another primer by Christian Felix Weisze, issued at Leipzig in 1772, contained short stories, fables, songs, prayers, and little verses. The gradual change from the purely religious book to the secular ideal was not effected without earnest and bitter controversy. It is said that in one instance the people rose in insurrection because the Creed and the Lord's Prayer had been omitted from the primer.

Such is the history of German reading books. In the United States a similar evolution occurred. Here, also, the religious ideal dominated the early schools. The *New England Primer* was the principal school book for more than a century up to the year 1800. The origin of this remarkable book is traced back to a primer issued by Henry VIII in 1534. Henry's primer contained "certain prayers and goodly meditations, very necessary for all people that understand not the Latin tongue." In 1679 Benjamin Harris issued in London *The Protestant Tutor*, which was a school reader. Coming to Boston a little later, he reissued his primer in America in 1685. Some time between 1687 and 1690 it was

reissued again under the title of the *New England Primer*. It soon became the most important book in the colonies.

The copy which I have before me was printed about the year 1785, a hundred years after the first edition. It contains a portrait of George Washington, the A B C's, words of one, two, and three syllables, a series of illus-



**In Adam's Fall
We sinned all.**

**Thy Life to mend,
This Book attend.**

**The Cat doth play,
And after flay.**

**A Dog will bite
A Thief at Night.**

**An Eagle' flight
Is out of fight.**

**The idle Fool
Is whipt at School.**

FIG. 9.

(see Fig. 9), extracts from the

A page from the *New England Primer*, actual size.

Bible, a "Cradle Hymn" by Watts, prayers, religious exhortations for the young, the Catechism, and a "Dialogue between Christ, Youth, and the Devil." This book reflected in a marvellous way the spirit of the age that produced it, and "contributed, perhaps

more than any other book except the Bible, to the moulding of those sturdy generations that gave to America its liberty and its institutions.”¹

Another important American school book was Noah Webster's *Speller*, issued near the end of the eighteenth century. This speller is still in use and is said to have reached a circulation of a hundred million copies. “The edition in use previous to the revision of 1831 comprized 168 pages, 14 of which are introductory; 66 contain words taken from the dictionary; 29 pages contain the names of persons, places, etc.; 47 contain reading lessons. . . . The edition published in 1831 contains several poems, a moral catechist, including abstract treatises on humility, mercy, anger, justice, gratitude; . . . precepts concerning the social relations, in which the young man, young woman, husband, wife, parent, and child are all briefly instructed and admonished.”²

Among other interesting devices formerly used for teaching children to read are the *horn-book*, *battledore*, and *sampler*.³ The horn-book dates in

¹ From the preface of Ginn & Co.'s reprint.

² R. R. Reeder, *Historical Development of School Readers*, Macmillan, 1900.

³ See Reeder, *op. cit.*

England from about 1450. It was a paddle $5\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches wide, with a handle. On one face of the paddle was pasted a piece of paper, which was protected by a transparent sheet of horn. There was printed on the paper first a cross, then the alphabet, large and small, next a line of vowels and combinations of these with consonants. Below was the exorcism, "In the name of the Father and of the Sonne and of the Holy Ghost, Amen." Then followed the Lord's Prayer and the Roman numerals. The horn-book was used also in the Dame Schools of New England. The child trudged to school with the horn-book slung from his girdle by a string attached to the handle. Hence this couplet:—

"Then after that he takes a pretty pride
To wear the horn-book dangling by his side."¹

The earliest horn-books had the alphabet or a part of it arranged in the form of a cross; hence "Criss Cross" and "Criss Cross Row" came to be a synonym for alphabet.

In England children were fond of the game of battledore and shuttlecock, in which they employed a square paddle resembling a horn-book. Hence by and by the alphabet was painted or impressed

¹ Hornbye's *Horn-Book*, London, 1622.

or cut on one side of it, and the battledore served the double purpose of a book and a bat. In time it became the synonym for horn-book and primer. Willis's *Current Notes* for October, 1855, has this paragraph: "Horn-books are now so completely superseded by the Battledore and the various forms of 'Reading Made Easy' that they are rarely met with, and few persons believe that such was formerly the means adopted to teach the young idea how to shoot." ¹

The sampler was a piece of embroidery done as a sample of skill in needlework. In New England it served the purpose of a horn-book for many generations of little girls. It usually contained the alphabet, the Lord's Prayer, hymns, original verses, etc., and the name and date. The writer is permitted to copy the following contents of a sampler which is an heirloom in the family of Hon. Cyrus C. Miller, President of Bronx Borough, New York City:—

Alphabet in large script.

Line of embroidery.

Alphabet in large capitals.

Line of embroidery.

Numbers from 1 to 16.

¹ Reeder, *Historical Development of School Readers*, Macmillan, 1909, p. 25.

Alphabet in small script.

Line.

Alphabet in small print.

Line.

How blest the Maid whom circling years improve
Her God the object of her warmest Love
Who sees her Parents Heart exulting high
And the fond tear stands sparkling in their eye.

Line.

Picture of a house.

Line of grass.

Mary Caroline Allison Aged 10 years, N. York
1818.

Surrounding all a conventionalized flower border.

Size 18 by 16 inches.

(2) *Method*. — For many centuries the *alphabetic* method held exclusive sway. By this plan pupils are taught in various ways the names of the letters, then by learning to spell and pronounce the words they learn to read. The objections to this procedure are now obvious. The names of the letters have no relation to their power or significance as elements of words. To a child, d-o-g spells *deogee*, as Dr. Hall has well said, and not *dog*; so far as any clew to pronunciation is concerned, the letters might as well be

Greek — delta-omicron-gamma. Yet, arbitrary and slow as this method is, we must admit that the children did somehow learn to read by it.

The first writer to protest against the folly and waste of the spelling method was Ickelsamer, who published a primer in 1534 in which the *phonic method* was advocated. Instead of the name of the letter, the child first learned its sound; and the author printed with each letter the picture of an animal whose voice or cry resembled the sound of the letter. Thus *m* was accompanied by a cow, *r* by a dog. The oral word was analyzed, and the pupil pointed to the pictures which represented the various sounds of the word. Unfortunately, Ickelsamer's reform was allowed to lapse into "innocuous desuetude," and for several centuries nothing more is heard of the phonic method. After him came Buno (1650) and Basedow (1774), each of whom had some special device for teaching by the alphabetic method. Buno printed his letters in the form of animals to facilitate learning. Basedow played games, and in his school bakery had sweet cakes and bread baked in the form of letters, so that the most doltish child "graduated from an alphabet diet of four weeks as an accomplished *a-b-c-darian*." ¹ We may add here

¹ G. Stanley Hall, *How to Teach Reading*, D. C. Heath & Co., 1897.

that the alphabetic method was forbidden by law in Prussia in 1872, and several other German states have since followed.

Pestalozzi had a phonic method, but it was so exceedingly mechanical and void of ideas that he himself lost faith in it. It was a *word-building method*, which begins with a single letter and by prefixing or adding other letters, forms a series of words, e.g., *a, an, and, land*. Pestalozzi's building was purely phonic, and did not even require words as the result of the successive buildings, e.g., *g, ge, geb, geba, gebad, gebade, gebadet*.

Comenius and Ratichius advocated the so-called *write-read method* in the seventeenth century. It combines the teaching of writing and reading into one process. Plato seems to assume its prevalence in his day when he says the young "ought to be occupied with their letters until they are able to read and write." Quintilian describes it in detail. The child, he says in his *Institutes of Oratory*, must not learn the names and order of letters until he learns their shapes. Letters are cut on a board, so that the pupil may trace their form in wax. This requirement of Quintilian's is in accordance with the latest teachings of psychology, which says that care must

be taken to give a child just the right kind of motor experience when he learns to write. The *read-write* method is to-day common in Germany, France, England, and the United States.

It remained for Jacotot, a Frenchman, to give us the *analytic method* of teaching reading. This starts with the principle that the mind proceeds from the whole to its parts and from the known to the unknown. In his teaching he would begin with Fénelon's *Télémaque*, and have the children learn the first sentence, repeating it after the teacher, word by word, until the whole had been learned. Thus:—

Calypso

Calypso ne

Calypso ne pouvait

Calypso ne pouvait se consoler.

The sentence was then written by the children from copy. Here we have the germ of the present-day methods which begin with a literary whole and proceed from sentence to word, from word to letter and sound. The word-image and thought are of the first importance. The chief merit of the system is that it begins with ideas, with worthy content capable of arousing the interest of the child; and by this means the image of the word is impressed upon the memory.

The origin of illustrated books is traced to the pictured Bibles of the cloister. The best known of the early illustrated school books is the *Orbis Pictus* of Comenius, issued in 1657. So great was the influence of this book that Comenius has been called "the father of all picture books for children." The method of Comenius was adopted by the *New England Primer*. To what a stage of perfection the illustration of primers has now been brought, we all know.

Reading machines were devices to secure the interest and self-activity of children in learning to read. The essential elements of the mechanism are a set of movable blocks or dice on which are stamped the letters of the alphabet. These are fitted into a frame and manipulated so as to spell syllables and words. The reading machines were used by the philanthropinists, and are still manufactured and sold. The nursery alphabet blocks constitute the machine reduced to its simplest form.

The history of method shows us about every element of correct teaching as understood and practised to-day by the most enlightened communities, thus confirming the statement of Solomon that there is nothing new under the sun. Most of the conclusions of psychological investigations have

been anticipated by empirical discovery. It must be admitted, however, that no one man in previous history advocated or combined all the elements of sound method ; but taking the course of history as a whole, we are able to cull out here and there principles and devices which, when combined, match the best thought and practice of the present generation.

2. *The Beginnings of Reading*.—All reading to-day is taught by various mixtures of the word, sentence, and phonetic methods. Somewhere every system introduces sight words,¹ which as soon as known are read in sentences. All authors recommend phonic work, although a few object to diacritical marks.

(1) *Some Definitions*.—Before entering upon a fuller discussion of this phase of reading, it may be well to present a few definitions. The words *phonic* and *phonetic* are used in teaching parlance rather loosely and interchangeably. *Phonic* has reference to sound ; when, therefore, we teach children the elementary sounds of the language, we are having a phonic drill. The word, however, covers any kind of sound in nature, no matter how produced. *Phonetic*, on the other hand, relates especially to articulate sounds, or sounds made by the human voice. It

¹ See Principles 18 and 19, p. 75.

also includes the representation of articulate sounds by characters, which *phonics* does not. It would seem, therefore, that in all cases *phonetic* is the better word to use in any discussion of sounds in connection with reading.

Certain other terms have become familiar in the pedagogy of phonetics, of which the following are examples:—

A *Phonogram* is a written or printed representation of an articulate sound. It may consist of one letter or of more than one; as, *f, s, l, ing, ight, ail*. When the phonogram has but one letter, some authors call it simple; when it has more than one letter, they call it compound.

A *Sight Word* is a word that has been taught as a whole, and is therefore recognized by sight alone.

Sight Reading is reading sight words either singly or in sentences.

A *Phonetic Word* is a word to be read by means of its phonograms.

Phonetic Reading is the reading of phonetic words either singly or in sentences.

A *Blend* is the combination of sounds, simple or compound, to form words.

(2) *Principles governing the Selection of Sight*

Words. — The words to be taught in the beginning of reading must be selected in accordance with some definite aim and not in a haphazard way. I think the following principles should be observed : —

(a) First, there must be some words needful for sentence building, like *a, an, the, is*, etc.

(b) The words should represent ideas that are familiar and interesting to children, and should therefore be taken chiefly from their oral vocabulary.

(c) The first words should have a concrete basis in the form of things or actions ; that is, the majority should be nouns or verbs. These two parts of speech constitute 80 per cent of a child's speaking vocabulary. (See Principle 3.)

(d) If the method be analytic, the words are necessarily chosen from the first sentences of the reading matter of the grade.

(3) *Principles governing the Selection of Sounds to be Taught.* — What sounds shall be taught first ? Here again it is better to name the principles of selection and thus allow individual variations. The late Mr. Ward gave three principles which have been incorporated into the New York course of study, as follows : —

(a) The sounds should be easily made.

(b) They should be easily prolonged without alteration in character.

(c) They should be common to many words in the vocabulary of a child.

On the basis thus outlined Mr. Ward selects the following, and the New York course of study suggests most of them: *f, l, m, n, r, s, ā, ē, ō, ing, ings, ight, ights*.

In the case of an analytic system, the above principles will hardly apply, for the teacher will be obliged to select all phonetic elements from the reading text. One very successful primer¹ begins with these phonograms: *ake* (from *make*), *ill* (from *will*), *eat* (from *eat*), *all* (from *tall*), because the words in which these elements occur are very prominent and frequently repeated in the first stories read. New words are formed by combining with the above phonograms the initial consonants *m, b, c, t, r, l, w, s*, etc.

(4) *Teaching Sight Words*. — The method to be employed depends somewhat upon the theory of the reading system used by the teacher. With a synthetic method words are taught in isolation, in which case they are associated with the object or action for

¹ *The Progressive Road to Reading*, Silver, Burdett & Co., N. Y., 1909.

which they stand. Many schools are provided with dolls, toy animals, fruits, etc., which form the concrete basis of reading work. The steps of the process in this case might be as follows:—

(a) Present the object or picture of the object to the class and ask for the name of the same. Write or print the name upon the blackboard, telling the children what the word is.

(b) If other words are already known, have a number of such on the board with the new word sandwiched in here and there. Let children find the new wherever it occurs.

(c) After this, the word taught is printed or written upon a card in letters large enough to be read from the back of the room. All such words are reviewed every day by a rapid manipulation of these “perception cards.”

If the reading method be analytic, the plan might be as follows:—

(a) The word to be taught is taken from a sentence which the children have already memorized and recited.

(b) This sentence is written on the board, and the children are told what it says, *e.g.*, *This is the house that Jack built.*

(c) Some child may find the word *Jack*; another *built*; another *house*. Underline these words, and let children point to them repeatedly. Next write the same words under the underlined words, and let children name them. Then write the words on different parts of the board, and have them identified.

(d) Finally rub out the original sentence, and write the words on the board for independent recognition.

(e) After this place them on the perception cards for daily drill.

(5) *Teaching Sounds and Phonograms.* — The method may be analytic or synthetic. In the latter case the sounds would be taught in isolation and then combined into significant words. The analytic plan is the better. It may proceed in the following order:—

(a) The first step is to discover the sound. Suppose it is represented by the phonogram *ight*. The teacher writes upon the board the word *light*. She asks children to pronounce it; then to pronounce it very slowly.

(b) In this way the two sounds of the word will gradually dawn upon the consciousness of the children. Then she underlines the part which says *ight*.

(c) The phonogram is then placed upon a perception card for daily drill. The sounds of all phonograms, whether they be single vowels and consonants, or compound elements, are taught in the same way. The three essential steps are: *discover, isolate, drill*.

(6) *Teaching the Blend*.—After the sound and phonogram have been taught in the manner detailed above, we may extend the exercise in the following manner:—

(a) Suppose *light* has just been analyzed into *l* and *ight*. We may rub out the word and write the two phonograms with a short space between them. The pupil now slowly gives the sounds of *l* and *ight*, thus producing the original word.

(b) After this we build new words with our phonogram *ight* by changing the initial consonant, the children being required in each case to make the sound fusion mentally and then to pronounce the entire word at once. Some experienced teachers have found it expedient never to permit a child to voice the separate phonograms, but in word-building drills, at least, to require a full and perfect blend.¹

(7) *Correcting Errors*.—Phonetic work in all grades of an elementary school should include the correction

¹ See Manual of *The Progressive Road to Reading*.

of characteristic errors of pronunciation. Every community has its own peculiar faults. Each nationality has its special difficulty. The German has hard work with the soft *th* as in *this* and *with*. The Italian and the Russian find many sounds in English which are troublesome to the tongue. Each school and class will find out the dominant errors of its pupils and correct these by suitable drills. In ordinary cases it may be sufficient for the teacher to give the correct sound and ask the pupil to imitate her pronunciation. But in the case of foreign-born children or children born of foreign parents it is frequently necessary to take these several steps:—

(a) Analyze the word into its phonetic elements.

(b) Pronounce these separately for the pupil, and have him do so.

(c) Blend the elements into the original word.

(d) Drill on other words containing the difficult sound.

(e) Show the pupil the position of the organs of speech in pronouncing the word or phonogram.

(8) *A Device for Beginners in Reading.*—One of the difficulties in a beginners' reading class is that the little folks lose their places, and an enormous amount of time is wasted by the teacher in showing the pupils

where to read. Ordinarily this loss is at the expense of the children ; but when a supervising official undertakes to test such a class he also shares the loss. I have tested hundreds of classes that required twenty minutes to read around the class, a sentence to a child, when five minutes should have sufficed. Now time consumed in showing children their places is not available for teaching. It is therefore worth while to eliminate this waste. It may be done effectively by the following simple device:—

The teacher provides each child with an oak-tag strip as long as the width of the page and about an inch and a half wide. The children lay this strip upon the book in such a way that the line to be read is visible above the upper edge of the paper. A child is called upon to read line one. Then the teacher quietly remarks: "Move the paper," and each pupil slips the strip down far enough to expose line two. When that has been read, the operation is repeated. Thus there is not the slightest difficulty in keeping the place, and no time is lost.

3. *Methods of imparting the Content of a Reading Lesson.*—Thus far we have been occupied exclusively by the mechanical side of reading, the mere conquest of symbols. This is of course the indis-

pensable prerequisite to the next and more important step of mastering the thought and emotional content of what is read.

(1) *Impression and Expression.* — All successful teachers of reading in the early primary grades divide the process, by one means or another, into two parts, impression and expression, getting the thought and giving the thought. It is the recognition of the principle that the child can do well *only one thing at a time*. Sometimes the teacher calls the impression “reading” and the expression “telling.” She directs all the children to read the “story” (sentence or paragraph) and gives Mary permission to tell what she has read. In this way she employs social co-operation to maintain interest and at the same time secures the individual effort of every pupil. The neglect of the above device, the calling upon pupils in regular order to stumble over the page as best they may, while the rest of the class go wool-gathering or fall into disorder, is one of the commonest faults of *poor* teachers and one of the most prolific sources of waste in school. A cardinal principle, then, of primary reading, at least in the first year, is that a pupil must never be permitted to attempt oral reading until he has secured the thought by silent

preparation. In the lowest grades it is well to require children to avert their eyes from the page while they tell what they have read, in order to induce the habit of reading thoughts rather than words. (See Principle 20.)

In the higher grades the preparation of the lesson is in effect the impressive side of reading. It is the mastery of the content. This must be done before the class undertakes oral reading at all. It is very foolish to try to do both of these things at once; for if the pupil is allowed to make an attempt at oral reading before he is properly prepared to do so, the result will be unsatisfactory in every respect. A child cannot express what he does not feel or understand; and the hesitating, stumbling efforts at reading which one often hears in class rooms are due entirely to insufficient preparation.

(2) *Lyrics (Primary)*. — The first principle we shall appeal to in presenting a literary masterpiece is that of congruity (Principle 8), which admonishes us that our mood must harmonize with the general spirit of the piece. In other words, the first step is to create a suitable atmosphere. Many of the great classics appeal primarily to the emotions; and Dr. Hall has well said that the “emotions are far more

independent of age than the intelligence." For this reason certain brief strains of lyric poetry like Wordsworth's "We are Seven" and Emerson's "The Mountain and the Squirrel" exercise their spell upon a child of seven as effectually as on a man of seventy. The secret of successful treatment of any such work of art is to present it so that it will make the right kind of emotional appeal. We may illustrate the presentation of a lyric in the second year of school by reference to Shakespeare's *Where the Bee Sucks*:—

"Where the bee sucks, there suck I;
In a cowslip's bell I lie;
There I couch when owls do cry.
On the bat's back I do fly
After summer merrily.
Merrily, merrily, shall I live now
Under the blossom that hangs on the bough."

A preliminary explanation of the teacher brings home to the class the fact that this is the song of a fairy who inhabits with Oberon and Titania the world of grass and flowers. The atmosphere is created by the teacher's reading of the poem, in connection with her explanation. Possibly one or two words like *couch* and *bough* need clearing up, and this is all the preparation required.

(3) *Narrative Poem (Fourth Year)*.—A little more

elaborate is the treatment required of a narrative poem like Wordsworth's *Lucy Gray*:—

1. Oft I had heard of Lucy Gray ;
And, when I crossed the wild,
I chanced to see at break of day
The solitary child.
2. No mate, no comrade Lucy knew ;
She dwelt on a wide moor,
— The sweetest thing that ever grew
Beside a human door !
3. You yet may spy the fawn at play,
The hare upon the green ;
But the sweet face of Lucy Gray
Will never more be seen.
4. "To-night will be a stormy night —
You to the town must go ;
And take a lantern, child, to light
Your mother through the snow."
5. "That, father ! will I gladly do :
'Tis scarcely afternoon —
The minster clock has just struck two,
And yonder is the moon !"
6. At this the father raised his hook,
And snapped a faggot band ;
He plied his work ; — and Lucy took
The lantern in her hand.

7. No blither is the mountain roe :
 With many a wanton stroke
Her feet dispersed the powdery snow,
 That rises up like smoke.
8. The storm came on before its time :
 She wandered up and down ;
And many a hill did Lucy climb :
 But never reached the town.
9. The wretched parents all that night
 Went shouting far and wide ;
But there was neither sound nor sight
 To serve them for a guide.
10. At daybreak on a hill they stood
 That overlooked the moor ;
And thence they saw the bridge of wood,
 A furlong from their door.
11. They wept — and turning homeward, cried,
 “In heaven we all shall meet ;”
— When in the snow the mother spied
 The print of Lucy’s feet.
12. Then downwards from the steep hill’s edge
 They tracked the footmarks small ;
And through the broken hawthorn hedge,
 And by the long stone wall.
13. And then an open field they crossed :
 The marks were still the same ;
They tracked them on, nor ever lost ;
 And to the bridge they came.

14. They followed from the snowy bank
 These footmarks, one by one,
 Into the middle of the plank :
 And further there were none !
15. Yet some maintain that to this day
 She is a living child ;
 That you may see sweet Lucy Gray
 Upon the lonesome wild.
16. O'er rough and smooth she trips along,
 And never looks behind ;
 And sings a solitary song
 That whistles in the wind.

I venture to present an abstract of the treatment of this poem suggested by Mr. Percival Chubb, one of the best authorities on the teaching of literature :¹—

(a) The teacher reads the poem to secure total dramatic impression, making plain by her rendition that the little drama has three acts, a prologue, and an epilogue.²

(b) She explains 'just enough' to remove difficulties and to create the right mood or atmosphere.

(c) Then the children read stanzas in their natural grouping, beginning with the prologue as the first portion.

¹ *The Teaching of English*, p. 97.

² *Prologue*, stanzas 1-3; *Act I*, stanzas 4-7; *Act II*, stanza 8; *Act III*, stanzas 9-14; *Epilogue*, stanzas 15-16.

(d) The reading of each group is followed by questions which may be necessary to clear up words and constructions that cause difficulty — no others.

(e) Lucy's character is talked about. What kind of girl was she? The answer is gathered from the verses.

(f) Lastly, the poem is memorized, and thus a good, emotional, yet simple interpretation is secured.

(4) *The Total Impression.* — With respect to a literary work, the essential thing is to grasp the whole with its interrelated parts. The little drama of Lucy Gray illustrates in a nutshell what is meant by this statement. The same treatment is to be applied to any work whatsoever, whether it be "Julius Cæsar," "Robinson Crusoe," "The Wreck of the Hesperus," or Burke's "Speech on Conciliation." In the case of lyrics, which are often very brief, the unity may be so obvious that no time need be spent on it; but in the case of ballads, or narrative poems, and prose works the careful study of the parts and their relation to the whole is highly important; for only by such study may the pupil gain a comprehension of the whole. In the upper elementary and high school grades, the first reading for total impression

is usually done by the pupils themselves, either in class or at home; but even here there may be opportunities for the teacher to clear up difficulties, to create an atmosphere, and to deepen the impression by adequate vocal interpretation. The first reading, then, is always somewhat superficial, inasmuch as the object is a large view, a general effect, a comprehensive glance.

(5) *Word Study*. — An important step in the mastering of the content of the printed page is the study of words. Poetry especially is prolific of unfamiliar terms. The second reading will be concerned in unlocking these secret meanings. In the primary grades the teacher will develop the idea by means of context, by comparison with known things, by story, and by picture. In the higher grades the pupil will use the dictionary; but even here the teacher's assistance is frequently required, as definitions seldom give any new knowledge. The high school and college classics are usually provided with footnotes which remove difficulties. Children should be carefully drilled in the use of diacritical marks, for without this knowledge the dictionary is of little or no use as a standard of pronunciation. They should have their attention called to the fact that

the same word may be used in several senses ; and when they are looking up the meaning of a strange word, they should read all the definitions given, and then use their judgment as to which meaning applies to the word in the given passage. Pupils must also be cautioned against misreading definitions. I recall a girl of foreign birth who looked up the word *educated*, and found that it meant "to bring up." Then she constructed this sentence to illustrate the use of the word : "The boy educated the chairs upstairs." In the smaller dictionaries the definitions are necessarily much abbreviated, and consequently often as obscure as the word itself. This is the case when the word is defined by a synonym. True logical definition consists in naming the "genus" and "difference" ; as, "A quadruped is an animal that walks on four feet." This definition affirms that quadruped is a member of a class called *animals* ; "that walks on four feet" is the difference between quadrupeds and other members of the animal class. The dictionary defines many words by giving another word having about the same meaning. Derivatives are defined usually by giving the meaning of the affixes ; as, "misdirection, the act of directing wrongly." In such cases the pupil obtains no real

information unless he refers to the definition of the primitive word. All these points must be impressed upon children before one can expect them to make an intelligent use of the dictionary. We must, however, not overwork the dictionary. It is not necessary for a child to know every word in order to appreciate a literary work; and appreciation is our goal.

(6) *Grammar, Figures, Allusions.* — In the upper grades, where the more difficult forms of literature are read, an important part of the interpretive process consists of a study of allusions, figures of speech, and grammatical forms.

The following stanza may serve to illustrate the force of this statement: —

“This is the ship of pearl, which, poets feign,
 Sails the unshadowed main, —
 The venturous bark that flings
 On the sweet summer wind its purpled wings
 In gulfs enchanted, where the siren sings,
 And coral reefs lie bare,
 Where the cold sea-maids rise to sun their streaming hair.”

Some account of the chambered nautilus and also of the “paper-nautilus” is necessary to understand such expressions as “ship of pearl” and the ethical and poetical force of the last stanza of the poem. Something, also, must be known about

the mythical sirens of the Greeks and the mermaids of Northern lands. Without such knowledge the words of the poem fail to call up successively the pictures which are the very substance and life of the poem. But an explanation of these obscure allusions must not transform the reading lesson into a lecture on biology and mythology. Just enough of time and attention must be devoted to such details to render the meaning clear and to make the words adequate media for the revelation of the poet's vision. In other words, the full, free current of the thought and feeling must not be interfered with by excessive attention to details. The appreciation of the poem is the only object of the lesson, and all information that does not contribute directly and indispensably to this result is an impertinence.

In teaching figures of speech, care should be taken not to make the subject a matter of formal definition, but of poetic appreciation. The *names* of figures are not so important as a lively sense of their peculiar appropriateness and beauty. To illustrate, let us take the following : —

“To-morrow, and to-morrow, and to-morrow,
Creeps in this petty pace from day to day
To the last syllable of recorded time,
And all our yesterdays have lighted fools

The way to dusty death. Out, out, brief candle!
 Life's but a walking shadow, a poor player
 That struts and frets his hour upon the stage
 And then is heard no more; it is a tale
 Told by an idiot, full of sound and fury,
 Signifying nothing."

A pupil may be able to define every figure treated by the rhetoricians, and still be unable to use or appreciate figurative language. A study of the above passage should give the child a lively sense of the beauty and appropriateness of the images conjured up by the poet's imagination. Life is a candle, a walking shadow, a poor player, an idiot's tale. All these comparisons are packed with consummate skill into a few short lines. That the reader should feel the beauty and power of this imagery is far more important than his ability merely to name and classify the figures.

(7) *A Definite Aim*. — "Indefiniteness of aim," says Mr. Chubb, "is one of the worst pitfalls in English work, the parent of confusion and superficiality."¹ It is to be assumed that an author capable of writing a great literary work must have had a definite purpose in view. The teacher, therefore, in presenting a masterpiece to a class, must first ask herself,

¹ *The Teaching of English*, p. 154.

"What sort of impression did the author evidently mean to make?" Having ascertained that, the appropriate handling will follow. In the case of Milton's *Paradise Lost*, "the teacher's business is to treat the work so as to enable the student to feel and appreciate the elevation, the sublimity, the high seriousness of the poem, the magnificent pomp, the classic, 'grand style' of verse."¹ A poem like Browning's *Incident of the French Camp* may be useful chiefly for dramatic imagination and presentation, and a good oral rendering by the teacher will remove all difficulties. To sum up: "We must be careful . . . not to do violence to a work by asking it to yield a different sort of pleasure, or illustrate a different kind of excellence from that dominant one which it was designed by its author to yield."² Uniform treatment is therefore out of the question. Appropriate emphasis is the thing we want. To get this, the teacher must know what she wants to accomplish before she meets the class.

4. *Reading as Expression*.—We may recall under this head how important a part of language in the "chattering stage" are gesture, tone, inflection. A child by a single word accompanied by the auxiliaries

¹ Chubb, *op. cit.*, p. 153.

² Chubb, *op. cit.*, p. 157.

mentioned manages to express himself with satisfactory completeness (Principle 2). Likewise let us revert to Principle 11, which asserts that silent reading alone is not sufficient. The muscular image of expression is an important part of meaning, and is an essential element of learning. Principle 12 exhorts us to employ the motor activities of children, since the development of brain fibres for motor, sight, and hearing areas reaches the maximum by the end of the second year. We learn further (Principle 13) that a word is the result of a voluntary activity of the mind, and that nature has provided a special area (Broca's Convolution) for the expression of words. In short, words are essentially motor, both as to meaning and as to memory. In all our thinking the motor image is present. Getting the thought is an important part of reading, but it is by no means the whole of reading; it is only the analytic half of it. Phonetic drills, careful training in enunciation, pronunciation, pitch, rate, quality, and those other details which constitute the mechanics of reading, are little less important than the mental process of thought-getting itself. In fact, the images of muscular movement involved in oral expression are indispensable to the real appreciation of dramatic passages

and other literature that makes strong appeal to the emotions. Take the following stanza:—

“Oh, better that her shatter’d hulk
Should sink beneath the wave!
Her thunders shook the mighty deep,
And there should be her grave!
Nail to the mast her holy flag,
Set every threadbare sail,
And give her to the god of storms,
The lightning and the gale!”

Can any pupil feel the intensity of the poet’s indignation and outraged patriotism who has not heard this declaimed and who does not accompany the words, even in silent reading, with images of the effort he would make in oral declamation? Many of the best selections in all our books are of this nature, and, therefore, systematic drill in the mechanics of reading is indispensable if reading is to yield its richest content as a school study.

(1) *Literature for the Ear*.—“Literature is a thing for the ear as well as for the eye; indeed, it was originally a thing only for the ear.”¹ Only within the modern era of printing has the eye enjoyed a monopoly of literary entertainment. “The pleasures of literature are enhanced by the cultivation

¹ *The Teaching of English*, Carpenter, Baker and Scott, Longmans, 1903.

of the ear. The rhythms of verse and prose, the fitness between the sound and the idea, often escape the child unless he hears them. He has not learned to read literature until he has come to *hear the sound while he reads silently*, and the necessary equipment for this feat is a full memory of the sounds of literary pieces.”¹

“The Greeks . . . regarded writing simply as a method of chronicling. Their test was always the spoken word in its musical and metrical relations. The voice was the medium, and the ear the critic. I have sometimes thought that the story of Homer’s blindness might be really an artistic myth, created in critical days, and serving to remind us, not merely that the great poet is always a seer, seeing less with the eyes of the body than he does with the eyes of the soul, but that he is a true singer also, building his song out of music, repeating each line over and over again to himself till he has caught the secret of its melody, chaunting in darkness the words that are winged with light. Certainly, whether this be so or not, it was to his blindness, as an occasion if not as a cause, that England’s great poet owed much of the majestic movement and sonorous splendor of his later verse. . . . When Milton became blind he

¹ Carpenter, Baker and Scott, *op. cit.*

composed, as every one should compose, with the voice purely, and so the pipe or reed of earlier days became the mighty many-stopped organ whose rich reverberant music has all the stateliness of Homeric verse, . . . and is the one imperishable inheritance of English literature.”¹

Speaking on the necessity of systematic education in the elements of vocal expression, Corson says: “How is this essential life of a poem to be imparted? By the fullest interpreting vocal rendering. That is, you must know how to read it — to exhibit the indefinable, spiritual atmosphere of the work by intonation, quality of voice, etc., as an accomplished elocutionist reads a favorite poem of Riley’s. You can’t do it by lecturing. A lecture about music is no substitute for a rendering of it. Verse, especially, must first be appreciated as an inseparable part of the *expression*; that is, felt in its organic character, before it is analyzed, and it therefore needs more than prose, to be vocally interpreted.”²

In the play of *Hamlet* one of the most thrilling episodes is what is called the “Closet Scene” (Act III, Scene IV): —

¹ *Intentions*, by Oscar Wilde, Thomas B. Mosher, 1904, p. 103.

² *The Aims of Literary Study*, Hiram Corson, The Macmillan Co., 1895, p. 106.

"*Hamlet*. Look here, upon this picture, and on this,
 The counterfeit presentment of two brothers.
 See, what a grace was seated on this brow :
 Hyperion's curls ; the front of Jove himself ;
 An eye like Mars', to threaten and command ;
 A station like the herald Mercury
 New-lighted on a heaven-kissing hill.
 This was your husband. Look you now what follows :
 Here is your husband ; like a mildew'd ear,
 Blasting his wholesome brother. Have you eyes ? " etc.

The Queen, overcome by this terrible denunciation, exclaims : —

"No more!"

But Hamlet proceeds : —

"A murtherer and a villain ;
 A slave that is not twentieth part the tithe
 Of your precedent lord ; a vice of kings ;
 A cutpurse of the empire and the rule,
 That from a shelf the precious diadem stole,
 And put it in his pocket ! . . .
 A king of shreds and patches, —"

It is here that the power of a great actor like Edwin Booth, whom the writer remembers in this connection, displays itself. The sudden transition from the stern and pathetic, the angry and impassioned, to the horror at the appearance of the Ghost, can

only be realized when the voice and action of the actor-artist accompany the lines of Shakespeare.

The Queen does not see the Ghost; Hamlet does; and she exclaims:—

“Alas! he’s mad!”

Then when she says,

“Whereon do you look?”

And he answers,

“On him! on him! — Look you how pale he glares!”

The Queen asks:—

“To whom do you speak this?

Hamlet. Do you see nothing there?

Queen. Nothing at all; yet all that is I see.

Hamlet. Nor did you nothing hear?

Queen. No, nothing but ourselves.

Hamlet. Why, look you there! look, how it steals away.
My father, in his habit as he lived.”

All this time Hamlet, with his eyes fixed and finger pointed, follows the movement of the Ghost, and when he pronounces the words, “My father,” the Queen shrieks, and the audience is ready to scream also with mingled amazement, horror, and admiration.

I have heard it said that thought-getting is the only object of reading; and therefore silent reading should occupy most of the reading period.

I reply that thought is only a part of the content of reading; the emotional element is frequently of far greater consequence than the intellectual. Will any one say that a pupil could get, from such a passage as I have quoted, any adequate realization of its soul-stirring passion by silently reading it? It is impossible. In order to feel what is in the poet's lines, you must either express them orally, or hear some one else express them, or think them in the form of muscular images. The way you say a thing determines the way it impresses you; and if you do not actually say it, the way you conceive the expression,—the imaged emphasis, slides, pauses, etc.,—reacts upon the idea and helps to determine its power over your soul.

For a detailed discussion of the elements of vocal expression, the reader is referred to manuals on elocution.¹ What is desired here is such emphasis of the importance of the subject that the teacher may feel the need of special preparation. In so-called art education there is now going on a slow revolution. Thousands of teachers are studying the principles and receiving drill in the practice of drawing, design,

¹ Especially such works as Clark's *How to Teach Reading in the Public Schools*, Scott, Foresman & Co., Chicago, and Fulton and Trueblood's *Practical Elements of Elocution*, Ginn & Co., Boston.

picture study, etc., who a dozen years ago were considered good teachers of drawing. Much the same thing is happening in music. Reading alone remains as it was twenty years ago, if, indeed, it has not deteriorated. The subject-matter of reading has vastly improved; but in the art of oral expression, no revival has come. We want to preach a new crusade. We want teachers to realize that reading is an art that requires special preparation just as much as music and drawing. We would not undervalue subject-matter, nor the ability to abstract rapidly for one's own use the thought-content of a book. But we want in addition to these excellencies such a culture in the art of expression that the reader's own feelings may be aroused and his imagination kindled. Thus will be increased mightily the power of literature upon reader and hearer.

(2) *High School Reading*. — The best authorities insist that as the pupil ascends in the grades he shall hear not less, but more expressive, reading by the teacher. The emotional appeal has been emphasized in the primary and grammar grades, and this is done chiefly by adequate oral rendering. But now we are to enable the student to appreciate subtler beauties, as revealed by the varieties and

intricacies of verse. This again is best accomplished by oral interpretation. Shakespeare especially needs the oral rendition. His lines were written chiefly to be heard, not read. Sir Henry Taylor says that he regards the reading of Shakespeare to boys and girls, if he be well read and they are apt, as carrying with it a deeper cultivation than anything else which can be done to cultivate them. "There are few gifts," says Mr. Chubb, "if any, that will atone for the absence in an English teacher of the powers to read Shakespeare well." Accordingly this author recommends that the first reading of a Shakespearean play be entirely by the teacher, with a minimum of comment. Such a reading will leave upon the pupil a deep and lasting impression of the play as a whole, of the "rise and fall of emotional emphasis, and of its poetic power."

(3) *S. H. Clark on Oral Reading*. — Mr. S. H. Clark¹ has compressed ten valuable ideas on reading into a little booklet of 59 pages. According to this treatment the essentials of oral reading may be taught under the following heads: —

(a) *Words*.

"We must *get* the thought; we must *hold* the

¹ *How to Read Aloud*, published by the author, at Chicago University.

thought; and we must *give* the thought. This is reading aloud." To do this we must attend closely to individual words, so that we may have in mind clearly the ideas for which they stand.

(b) *Grouping.*

"I saw a man in a steam car." (Two groups.)

"I went to King Street with my sister to buy a new hat."
(Three groups.)

Intelligence is shown and effectiveness produced by the correct grouping of the words to express succession of ideas.

(c) *Sentences.*

"I saw a cat, and a mouse, and a rat."

"But when the gray dawn stole into his tent,
He rose, and clad himself, and girt his sword,
And took his horseman's cloak, and left his tent."

The sentence is the unit of a complete thought, and the individual words and groups must be so pronounced as to convey clearly to the hearer the difference between the incomplete (word or group) and the complete (sentence) thought. This requires looking ahead, which for the beginner is a difficult feat.

(d) *Subordination.*

"The King of England, who was a very brave man, won several victories over the French."

"During the Christmas vacation, which lasts ten days, I went to see my grandmother."

Subordination is an important principle of all art. There is one dominant feature (sometimes more than one) and one or more subordinate elements. In oral reading, the voice must show the relative importance of different parts of the sentence.

(e) *Transition.*

"There's a good time coming, boys,
A good — Come in!"

"Halt!" The dust-brown ranks stood fast.
'Fire!' Out blazed the rifle-blast."

Here is a phase of reading not previously considered — the sudden interruption of the train of thought by ideas that are foreign to it. In the last exercise a group was thrown in that seemed to explain or supplement the principal thought. In the present case the first thought is driven entirely out of the mind by the second.

(f) *Emphasis.*

"I heard William say it."

"I should rather be a lawyer than a doctor."

The exact meaning of a sentence cannot be expressed without laying the emphasis on the proper words. Various meanings may be read

into the above examples by a mere change of emphasis.

(g) *Emotion.* (Sympathetic.)

"Three cheers for our class!"

"Farewell, a long farewell to all my greatness!"

Ideas and thoughts are not the only content of reading. Many passages appeal to the feelings. In the above instances the reader must imagine himself in the situation of the one who utters the words, and then try to express the passage as the person so situated would do it.

(h) *Emotion.* (Personal.)

"The other day a little child came to its mother, saying, 'Oh, mother! I just saw a beautiful toy in the window; I wish you would buy it for me.' *The sweet voice was full of pleading.* The mother was very poor, and had hardly earned enough to pay for fuel. *How could she spare even the few pennies for the toy?* But she said to herself, 'This is Christmas time'; and the tears came into her eyes. The little one saw the tears, and said, 'What are you crying for, mother?' *And then the mother hugged her child to her breast and kissed her again and again, saying over and over: 'Because I love you! Because I love you!'*

"When Christmas morning dawned, the little toy was on the mantel, and the child was happy. But when the time for breakfast came, the child asked her mother why she did not eat; and the mother answered, 'I am not hungry,

darling; don't mind me,' and she smiled tenderly upon the sweet face upturned to kiss her."

Here, if one reads attentively and sympathetically, he is touched with real emotion, which will give his reading a tender and pathetic effectiveness.

(i) *Contrast.*

"Last week I was sleighing and skating in Minneapolis; but to-day I am plucking violets and japonicas in the gardens of Savannah."

All art requires contrast. To heighten the effect of the lights in a picture the darks are introduced. So ideas are made more emphatic in reading by being contrasted with other ideas.

(j) *Climax.*

"I know it, I concede it, I confess it, I proclaim it."

5. *Class Criticism of Oral Reading.* — Children inevitably make mistakes in reading as they do in other recitations. How shall these errors be corrected? And what shall be the standard of accuracy to be insisted upon? Perfection we shall never attain because neither we nor the children are perfect in anything. Our own standard may be imperfect; and though the children succeed in satisfying us, their performances may still be defective. If they do not reach our ideal, they may be nearer right than we are. In matters of fact, as in science

and mathematics, it is possible to measure the degree of accuracy in the result, and to declare positively this is right and this is wrong. But in all forms of art, where perfection is a variable term depending on individual tastes, the measure of success is far more difficult than in the case of exact science. In drawing, for instance, what may we expect of the child? How accurate must he be in order to be credited with a satisfactory recitation? If our standard is too high, the pupil becomes discouraged, his spontaneity is crushed out of him, and he learns to measure his success by the nearness of his approach to our arbitrary standard, thus becoming a mechanical imitator. If our standard is too low, if we accept any product he chooses to give us, however slovenly and faulty, we can have no assurance that he will make any progress.

(1) *The Standard of a Good Recitation.*—Some standard there must be, and a reasonable one is that *the pupil shall have done his best*. Imperfections which are clearly the result of inattention, indifference, and carelessness must be positively rejected and treated, by an earnest and conscientious teacher, as an affront. Careful discrimination on the part of the teacher is absolutely essential. Of two pupils

equally successful when judged by an absolute standard, one may deserve praise and the other censure when judged in the light of their relative abilities. Progress and fidelity deserve consideration quite as much as successful achievement.

In reading, some elements, like the meaning, pronunciation, and spelling of words, are measured by the dictionary, which is a relatively constant and uniform standard. In spelling there can be no compromise. Absolute accuracy is the only result that can be accepted. One might as well make truce with a false multiplication table as to praise a pupil for misspelling a word. The standard of pronunciation is only a trifle less rigorous than that of spelling. Accuracy is the watchword. But when we come to such matters as the modulation of the voice, the grouping of phrases, the management of pauses, slides, gestures, facial expressions, etc., we are in the domain of art, where mechanical rules count for so little, and artistic temperament and method for so much. It would be quite impossible to account by rules for the success of Edwin Booth or Joseph Jefferson. There may be a dozen ways of reading a given passage, all effective, and yet so complex and subtle as to defy complete analysis and description.

(2) *Who is to criticise, and How?* — With the question of standard disposed of, we pass next to the consideration of the methods of criticism. And, first, who is to criticise? Shall the teacher assist every time the pupil hesitates? When an error occurs, shall the teacher or the class break in and make the correction, thus interrupting the current of thought in the reading?

We have two kinds of reading; namely, regular and supplementary. The regular lesson is usually prepared either in the class room or at home. Supplementary reading is frequently not prepared in the class and is never prepared at home. In the case of a prepared lesson, the average pupil under normal circumstances should make few mistakes in pronunciation. Expression, being an artistic process, may result in a greater number of errors; but, the standard being flexible, the mode of criticism must be different from that employed in the case of pronunciation. Even in supplementary reading the lesson should be prepared if possible. But, the object of this form of reading being to supply information, the ground to be covered sometimes makes it impossible to spend much time on preparatory work.

I believe a pupil should never be interrupted by

teacher or pupil until he has reached the end of a paragraph. If he comes to a word which he cannot pronounce, instead of hesitating, he ought to be taught to pass on without trying to pronounce it, or to call it "blank." When he sits down, the pupils who have noticed the errors may raise hands; but in order to insure careful attention, the teacher should frequently call for criticisms from those who do not volunteer. These criticisms should be as simple and direct as possible and should never be unkind. If the error is in pronunciation, the pupil may say, "Blank was mispronounced," or he may simply give the correct pronunciation, without any explanation. If the mistake is in expression or interpretation, the pupil may state the error, give the correct form, and state his reason. The teacher should keep in the background and offer suggestions only to supplement or correct the class. In persistent or peculiar cases of mispronunciation the words should be written on the board and the entire class should be carefully drilled until the difficulty is overcome.

6. *Reading to Pupils.* — We have already considered the need and value of reading to pupils in the study of literature for the purpose of setting stand-

ards of expression and securing adequate appreciation through the ear. In the lower grades, also, such reading has its uses. The first reading of poetry especially should be done by the teacher. Before the pupil has acquired facility in the mechanics of reading the teacher reads much to supplement the meagre amounts read by the class itself. In another part of this book we have indicated the chief objects of this reading and the books used in the several grades by the schools of New York.¹ In the first and second years the amount read to children exceeds that read by themselves. From the third year upwards the children read more than the teacher.

7. *Memorizing*. — In all good schools the memorizing of standard prose and verse is to-day a part of the prescribed work in English. In the syllabus of the New York schools the material to be memorized is suggested for each of the sixteen grades. What this means to the army of seven hundred thousand children who are thus absorbing culture it is difficult to exaggerate. What we learn in childhood we remember throughout life. The stores of lofty sentiment, of happy diction, of poetic rapture thus laid by will serve in all the future as a source of supply

¹ Chap. VI.

for oral and written speech. The ethical influence is no less important than the æsthetic.

“Whene’er a noble deed is wrought,
Whene’er is spoken a noble thought,
Our hearts in glad surprise
To higher levels rise.”

The emotional stirrings which accompany the memorizing and proper recitation of masterful literature leave the pupil forever richer in the furnishings of the soul.

I regret to say that, according to my experience as a supervisor of teachers, the memorizing of poetry is badly done. I have seen beautiful literature murdered in hundreds of classes; and I have also heard poems recited in a manner so vivid and convincing that the effect was simply thrilling. I fear that in the majority of class rooms the poems are merely given to the children to memorize without being explained, interpreted, or read aloud. The result is deplorable. It is even exceptional to find a class in which the children give evidence of adequate comprehension by proper expression. This very day I examined a fifth-year class on memory work. A girl was called upon to recite Longfellow’s *The Arrow and the Song*. She went through the

piece in a monotonous and mechanical sort of way, indicating clearly enough that she was merely recalling words in a given sequence rather than delivering a worthy message for the uplift of the class. Here is the poem : —

“I shot an arrow into the air,
It fell to earth I knew not where;
For, so swiftly it flew, the sight
Could not follow it in its flight.

“I breathed a song into the air,
It fell to earth I knew not where;
For who has sight so keen and strong
That it can follow the flight of song?

“Long, long afterward, in an oak
I found the arrow still unbroke;
And the song, from beginning to end,
I found again in the heart of a friend.”

I asked the little girl what is meant by the last two lines. Apparently it had never occurred to her that the words meant anything. The class had not been trained to look for meaning. They recited the words as if words, as such, satisfied the requirements of the situation. There was not a single pupil in this class who could give an intelligent answer to my question. When I suggested to the girl who had

recited that *she* was the "friend" in whose heart this particular song might be found, the whole class awoke with a new interest.

The moral of this experience is that to cast these precious gems of literature at the feet of children without telling them what to do with them or how to appreciate them is almost a capital crime. In every instance these pieces should be given to the children, if possible, in printed or typewritten form. And this *is possible*, for a well-known house publishes a series of books containing all the poetry for memorizing prescribed by the principal cities of the United States. The poem should then be read by the teacher. Any explanation necessary for the creation of the proper mood or atmosphere must be made in connection with the reading. Then the children must learn to read themselves, every pause, emphasis, slide, being carefully noted and understood. Only then should the class be allowed to memorize the words.

8. *Story-telling*. — Blessed is the teacher who knows how to tell stories; for she is a well-spring of joy to her pupils and mistress of one of the most useful tools of education. In the primary grades there is reading by the pupils, reading to the pupils,

and memorizing of poetry. There should also be some story-telling. What story-telling is, and what stories to tell, has been recently made very plain by Miss Bryant's two volumes on the subject. But the art of handling stories cannot be taught by books. In its best form it is a natural gift chiefly; for it involves the knack of gesture, intonation, and facial expression to indicate surprise, anger, joy, sorrow, transition, suspense, and the whole gamut of human emotion. For the majority, unfortunately, it is not a gift, but an acquisition. It is of course impossible here to define the elusive charm of a good storyteller. But a few elements of success may be briefly outlined as follows:—

(1) The teacher must know and like children, and have imagination enough to sympathize with their point of view.

(2) She must master the story she would tell in all its many-sided possibilities. The main topics should be firmly held in mind, so that the narrative may proceed in logical order.

(3) She must have skill in the use of apt, simple, and forceful language.

(4) She ought to have a charming personality, musical intonation, clear enunciation, refined pro-

nunciation, with all the magic of personal coloring and mimicry.

(5) She must, "without the aid of lute or lyre, chant or interlude, be a magician of all childish moods, in the compass from grave to gay; able to touch lightly the minor chords that are needed to bring out the triumphant major passages."¹

(6) "Imagination and feeling," says Richard Thomas Wyche,² "are two essential elements in literature. He who tells a story must deal with these as he would with an intimate friend. . . . He must feel that heroism and self-sacrifice that entered into Ulysses as he said farewell to Penelope and her people, and with hopes sailed away to Troy to rescue Helen, the stolen queen. . . . He must feel his sorrow and disappointment when his ships were swept out of their course and he became a wanderer over the face of the deep. . . . But the mental processes of expression are more than seeing and feeling. One must will. He who would tell a story successfully must take the bit in his teeth; believe in himself, will that his audience see with him the mental pictures, and feel with him the truth of the story."

¹ Chubb, *The Teaching of English*, The Macmillan Co., 1909, p. 44.

² *Some Great Stories and How to Tell Them*, by Richard Thomas Wyche, Newson & Co., N. Y., 1910, p. 92.

CHAPTER VI

A QUANTITATIVE STUDY OF READING

A SUPERVISOR of schools is required constantly to pass qualitative judgment on the work of teachers. He ranks the abilities of his subordinates as good, bad, or indifferent. Generally the teacher's license or tenure of employment depends upon the rating thus given. It is evident, however, that the efficiency of teaching is determined by quantity as well as by quality. One is not able, by a half-hour's observation alone, to say with perfect assurance that the work of a given class is in all respects satisfactory, for the method of doing a piece of work may be quite correct, while the net result may at the same time be unsatisfactory. Thus, in reading, the mode of presentation may be faultless, the fluency and expression of the pupils may be admirable, yet the work as a whole may be a miserable farce because too little ground has been covered. To be entirely certain that reading has been well taught, one must

know not merely how glibly a given lesson is read, but also the quantity of material that has been mastered.

How shall we determine the amount read? What shall be the unit of measure? What is a reasonable amount of reading for each of the several grades of an elementary school? What is the relation of the quality and quantity of the reading to the amount of time devoted to the subject?

These and kindred questions the present inquiry is designed to answer.

1. *The Unit.* — It is evident that the page is not a satisfactory unit of measure, because it is not a fixed quantity. Pages vary in size, as well as in the kind of type and spacing. The most perfect kind of measurement is that in which the unit itself is measured. Counting eggs is a crude way of estimating value, because some eggs are large and some are small. Measuring wheat by the bushel is inaccurate, because the measure may vary by being level, heaped, shaken down, or by some other mode of modification. Therefore, when large quantities of wheat are handled, the bushel is measured in terms of pounds, and wheat is sold by weight.

In this study the word is the primary unit of meas-

ure. It is true that words differ in length, but, on the whole, a thousand words of reading matter constitute a pretty constant factor, unmodified by size of page or type or spacing. In order to avoid the use of too many figures, I have adopted the derived unit of *one thousand words* for all quantitative comparison of reading matter. The reader will interpret the figures in the tables which follow accordingly.

The blank used in the investigation was prepared by the writer and sent out at the close of the term ending June 30, 1910, to each of the twenty-three schools in his district. The returns exhibit the work of over 700 teachers and about 30,000 children.

Report on Reading

During present term to date:191

P. S. Bor. of. Class. Teacher

NOTE 1. — In making up this estimate for masterpieces read in the upper grades, only matter that has been completed by first, second, and third readings as required by the syllabus is counted. Under (*a*), (*b*), etc., the names of masterpieces should be recorded, as well as the titles of supplementary readers in geography, history, etc.

NOTE 2. — In estimating the amount read, count the words on a full page and multiply this number by the number of pages read, *deducting space occupied by pictures, maps, etc.*

NOTE 3. — In cases where a number of classes of the same grade are taught by a departmental teacher, a single blank will do for all classes having read the identical material. The names of all such classes included in the report should be entered at the top of the blank. The figures will represent what *each* class has done.

- | | |
|---------------------------|---------------------|
| 1. Name of basic or grade | (i) |
| reader | (j) |
| 2. Names of additional or | (k) |
| supplementary readers:— | 4. Names of stories |
| (a) | dramatized:— |
| (b) | (l) |
| (c) | (m) |
| (d) | (n) |
| (e) | (o) |
| 3. Names of books used in | (p) |
| reading to the class:— | (q) |
| (f) | (r) |
| (g) | (s) |
| (h) | (t) |

- | | |
|-----------|-----------|
| (u) | (w) |
| (v) | (x) |
| (v) | (y) |
5. Number of *different words* of all kinds taught
(1A or 1B)
 6. Estimated number of words of reading matter
covered this term in basic reader
 7. Estimated number of words of reading matter
covered in (a)
 8. Estimated number of words of reading matter
covered in (b)
 9. Estimated number of words of reading matter
covered in (c)
 10. Estimated number of words of reading matter
covered in (d)
 11. Estimated number of words of reading matter
covered in (e)
 - Total
 12. Estimated number of words of reading matter
covered in reading to the class
 13. Number of stories dramatized to date
 14. Number of minutes per week devoted to read-
ing: (a) basic or grade (+ memory and pho-
netics); (b) supplementary (all
other, including reading to class, but exclud-

ing spelling, meaning, use, etc.) ;

(c) Total

I have inspected the above report and believe it to be correct.

(Signed) Principal.

*Please mail this report within three days to the
District Superintendent.*

2. *Number of Words taught in the First Year.*—The New York syllabus in reading requires that the pupil shall be able to recognize promptly and to pronounce correctly at least 300 words during the first term of the first year and at least 300 additional words during the second term. This study shows the following results: the average number of words taught during the first half-year in 23 schools is 520; the average number during the second half is 1100. These schools therefore are doing much more than is demanded of them. The range of words is from 300 to 1575 for the first term, and from 350 to 2368 for the second term. For the entire year the average is 1620; the range is from 650 to 3556. The schools are therefore teaching nearly three times as many words as the syllabus requires; and when a teacher complains that the board of education demands too much, the answer is obvious.

3. *Total Amount Read.* — Below will be found the average amount read in the several schools of the district during each of the eight school years, together with the average time devoted to reading as a separate exercise. Time is given in terms of minutes per week.

Average Amount read in 23 Schools

(Unit = 1000 words)

Year . . .	1	2	3	4	5	6	7	8	Total
Quantity . .	25	59	118	198	197	180	95	108	980
Time . . .	416	365	306	220	216	188	155	135	

The course of study prescribes the minimum time that may be devoted to English, but permits the principal to apportion this total among the several branches of English at his own discretion. The minima given are as follows:—

Minimum Time for English

Year . . .	1	2	3	4	5	6	7	8
Time . . .	450	510	450	375	375	375	360	320

As grammar, word-study, composition, etc., demand more time in the higher grades, reading time gradually tapers off.

The maximum amount of reading is done during the fourth, fifth, and sixth years. Several reasons

may be assigned for this. First, these are the grades where much supplementary reading is demanded in history, geography, science, and literature. Secondly, in the highest grades, the pupil prepares his lessons out of school hours, and does much of his reading at home. Finally, in the seventh and eighth years, masterpieces of English are read. These are very difficult and require three separate readings, as follows: the first, to get a general idea of the argument, drift, or plot; the second, to master the difficulties of word-study, construction, figure, or allusion; the third, to secure expressive reading of selected passages.

4. *The Books used in Reading by Children.* — In New York we have an open book list. The board of education, on the recommendation of the board of superintendents, puts upon the list all the books and general supplies deemed worthy; and upon each principal, subject to the approval of the district superintendent, devolves the duty of selecting from the official list the supplies used in his school. A certain per capita allowance of money is apportioned to each school, and the board of education puts no restriction upon principals save that they must order from the list and keep within their allowance.

The result of this system is, in the judgment of the writer, very satisfactory. The principal has thus a chance to assert his individuality in the choice of the materials of instruction. Responsibility goes with power. If he shows poor judgment, he must bear the consequences. If he wastes his substance early in the year on expensive books and later lacks funds for paper and pencils,— the bread and butter of a school,— he alone is to blame. The knowledge of such responsibility sobers him into reflection, and makes him a far more valuable executive than he would be if some one benevolently undertook to do all his thinking for him.

With an open book list, one would naturally expect to find great variety in the choice of books. The following partial list of readers used in the several grades by the schools of this district shows that such expectation is fully realized. No class is limited to a single reader. The number of books read in each half-year grade during the first three years averages about three per class, and ranges from two to six.

First Year

Ward's Primer and First ; Jones's First ; Aldine Primer and First ; Cyr's Primer and First ; Baldwin's

First; Culture Readers, I (Miss Merrill); Finger Play Reader, I (Davis and Julien); New Education, First; Graded Literature, I; The McCloskey Primer; Stepping Stones, I; Child Life, I (Blaisdell); Lansing's Rhymes and Stories; Folk Lore Stories and Proverbs (Wiltse); Eugene Field Reader; Pathways in Nature and Literature; Summer's Primer; Progressive Road, I (Ettinger); Horace Mann, First; Art and Life Primer (Jacobs).

Second Year

Ward's Second and Third; Heath's Second; Fables and Rhymes for Beginners; Pets and Companions; Brumbaugh's Second; Blaisdell's Child Life, II; Wilson's Nature Study in Elementary Schools; Wade and Sylvester, II; Wake Robin, I; Baker and Carpenter's Second; Cyr's Graded Art Reader; Baldwin's Second; New Education, Second; Culture, Second; Graded Literature, Second; Cyr's Second; Grimm's Fairy Tales; Book of Plays for Little Actors; In Mythland; Reynard the Fox; Aldine, Second.

Third Year

Ward's Third; Heath's Third; Buckwalter's Third; A Child's Book of Poetry; Blaisdell's Child Life,

III; All the Year Round, III; Grimm's Fairy Tales; Baker and Carpenter's Third; Jones's Third; Child Life in Tale and Fable; Graded Literature, Third; Feathers and Fur; Graded Classic, III; Hazen's Third; Baldwin's Third; Pinocchio; Alice in Wonderland; Cinderella and Other Stories; Stepping Stones, III; Cyr's Third; Four New York Boys.

Fourth Year

Heath's Fourth; Wake Robin Series, II; Little Wanderers; Good Health for Girls and Boys; Twilight Stories; Four New York Boys; Sprague's Classic Reader, IV; Good Citizenship (Richman and Wallach); Baker and Carpenter's Fourth; Stories of American Pioneers; Nature Study Made Easy; Longman's Geographical Reader; Stepping Stones, IV; Graded Literature, IV; Maury's Geography; Straubenmüller's Home Geography; Little Lamé Prince; Dickens's Christmas Carol; Robinson Crusoe; Spyri's Heidi; Brumbaugh's Fourth; Dodge's Elementary Geography.

Fifth Year

Four New York Boys; Graded Literature, V; Black Beauty; Brumbaugh's Fifth; Geography

Primer (Cornman and Gerson); Heath's Fifth; Cyr's Fifth; Geography of New York (Smith and Perry); Channing's First Lessons in United States History; Baker and Carpenter's Fifth; Barnes's Elementary History; Kingsley's Greek Heroes; Shaw's Discoverers and Explorers; King of the Golden River; Stepping Stones, V.

Sixth Year

Heath's Sixth; Carpenter's South America; Gulick's Town and City; Graded Literature, V and VI; Dodge's Geography, IV; Jones's Sixth; Builders of Our Country; How to keep Well; Baker and Carpenter's Sixth; Frye's Complete Geography; Tarr and McMurry's Europe; Stoddard's Lectures; Poems of American Bravery (Mathews); Blaisdell's Hero Stories from American History; Jewett's Town and City; Tarr and McMurry's Geography, II; Eggleston's First Book in American History; Tanglewood Tales; Hawthorne's Wonder Book; The Man Without a Country; Grandfather's Chair.

Seventh Year

Courtship of Miles Standish; Snow Bound; Irving's Sketch Book; Evangeline; Rolfe's Tales

from English History; Franklin's Autobiography; Great Stone Face; Tales of the White Hills; Burroughs's Birds and Bees; Lessons in Hygiene; Birds and Bees and Sharp Eyes.

Eighth Year

Lady of the Lake; Julius Cæsar; Sohrab and Rustum; Gettysburg Address; Epoch-making Papers; Merchant of Venice; Lamb's Tales from Shakespeare; Washington's Farewell Address; Lincoln's Second Inaugural; Warner's A-Hunting of the Deer; Adams's Commercial Geography; Tarr's New Physical Geography; Webster's Reply to Hayne.

5. *Reading to Pupils.* — The New York syllabus requires the teacher to read *to* the pupil during the first four years of the course. The subjects and books to be used for this purpose are suggested, and the four aims to be kept in view are enumerated as follows: "(1) To develop an interest in reading, (2) to cultivate the imagination, (3) to present a model of expression, and (4) to create ideals of right living." While the requirements of the course limit such work to the first four grades, this investigation shows that the schools of one district voluntarily continue the same through all the remaining grades. The follow-

ing table exhibits the average amount read *to* children in each of the eight years :—

Amount read to Children

(Unit = 1000 words)

Grade . . .	1	2	3	4	5	6	7	8	Total
Amount . .	42	62	64	70	68	51	34	16	407

The books from which this reading is done are very numerous. We give a partial list selected from the returns :—

First Year

Stories to tell Children; Pets and Companions; Legends of the Red Children (Pratt); Boston Collection of Kindergarten Stories; Rhymes and Fables (Haaren); Grimms' Fairy Tales; Tale of Peter Rabbit; Three Bears; Child's Garden of Verse; R. L. Stevenson Reader; In the Child's World (Poulson); Andersen's Fairy Tales; Æsop's Fables; Mother Goose Rhymes; Nursery Stories and Rhymes (Poulson).

Second Year

Grimms' Fairy Tales; Book of Fables; Health of Little Folks; Scudder's Fables and Folk Stories; Month by Month (Willis and Farmer); All the

Year Round; Five Minute Stories (Richards); Child Life, II; Parts of Children's Library Books; Stories to tell to Children; Andersen's Fairy Tales; Stevenson's Poems; Famous Stories Every Child Should Know.

Third Year

Black Beauty; Beautiful Joe; Young Folks' Fairy Stories; Hiawatha; How to tell Stories to Children; Fifty Famous Stories; Robinson Crusoe; Blue Fairy Book; Poems of Longfellow and Whittier; Little Lame Prince; Stories of Long Ago (Kupfer); Shy Neighbors; Granny's Wonderful Chair (Browne); Our Birds and their Nestlings.

Fourth Year

Glimpses at the Plant World; The Wild World; Little Lord Fauntleroy; King of the Golden River; Boys of Other Countries; The Wonder Book; Alice in Wonderland; Arabian Nights; Joyous Story of Toto; The Dog of Flanders (Ouida); The Story of the Romans; Poems from Holmes; A Home Geography of New York City; Jungle Book.

Fifth Year

Robinson Crusoe; Blaisdell's Story of American History; The True Story of Abraham Lincoln; Longfellow Leaflets; Heroes of American History; Captain January; Good Citizenship (Richman); The Story of Patsy; Swiss Family Robinson; Dole's The Young Citizen; Discoverers and Explorers (Shaw); Hoosier Schoolboy; Stories from Mark Twain; Nature Study Made Easy; Horatius (Macaulay); Ulman's Landmark History of New York.

Sixth Year

Carpenter's Geographical Reader; Tarr and McMurry's Geography; Gordy's History of United States; McMaster's School History of United States; News Items brought by Children; Ethics of Success (Thayer, Bk. II); Man Without a Country; A Girl of '76.

Seventh Year

Legend of Sleepy Hollow; Story of Acadia; Chronicles of Tarrytown, etc. (Bacon); Literary Pilgrimages in New England; Dickens's Child's History of England; Rolfe's Tales from English History; Carpenter's North America; Mowry's English History.

Eighth Year

Shakespeare; Literary Pilgrimages in England (Bacon); Plutarch's Lives; Literary Digest; Current Events; Poems of American Patriotism (Mathews); Open Sesame, II, III; David Harum; Rebecca of Sunnybrook Farm; Leak in the Dike; Fiske's American Revolution.

6. *Relation of Quantity, Quality, and Time.*— During the school year ending June, 1910, the writer made a personal examination of the reading ability of more than 15,000 children, registered in 333 classes. He is therefore able to compare reading efficiency with the time devoted to reading. The results were recorded in each class at the time of the visit and were afterwards summarized by schools. The success of the reading was indicated by letters, as follows: A, B+, B, represent satisfactory work, A being the highest grade; C and D represent unsatisfactory work. In the table which follows are shown in close juxtaposition the number of the school (fictitious), the amount read in eight years, the average time allowance per grade, and my estimate of the reading of the school. Only eighteen of the

twenty-three schools are included in this comparison because five of the number lack one or more of the upper grades.

Comparison of Time, Quantity, and Quality

School . . .	1	2	3	4	5	6	7	8	9
Amount . . .	1017	830	781	1146	1269	653	729	978	956
Time . . .	248	232	240	244	235	240	233	336	206
Proficiency .	B	B+	B+	C	B+	B+	B+	B+	B

(Continued)

School . . .	10	11	12	13	14	15	16	17	18
Amount . . .	988	813	948	1784	917	923	1147	1270	816
Time . . .	331	233	281	252	251	252	248	236	236
Proficiency .	B	B+	B+	B+	B+	B+	B+	B	B+

So far as time and efficiency are concerned, this table demonstrates once more the well-known principle that educational success is due far more to masterful administration than to the individual ability of teachers. The four schools marked B employ on an average 255 minutes for reading, the twelve schools rated B+ use only 252 minutes, while the C school has 244 minutes. It will be recalled that Dr. Rice in his spelling investigations discovered similar conditions. The school that had only six minutes a day could spell quite as well as another that had fifty minutes. Expert supervision is the dominating

factor of the educational situation. In a well-supervised school the children are proficient in their studies; in a poorly supervised school they are deficient. This proposition has no exceptions, and holds, within limits, irrespective of the time that may be devoted by the course of study to any given subject.

A comparison of quantity and quality seems to indicate that fluency in reading varies indirectly as the amount read. The B+ schools read on an average 968 units in eight years. The B schools read 1057 units. The C school reads 1146 units. This indicates that when too much is attempted the quality deteriorates. If you test the children of a class that has read an abnormally large amount, you generally find them deficient. They do not know the meaning of words, and therefore read without fluency and without proper expression. They confirm your suspicion that they have not been *taught* reading, but have been merely dragged over the ground. Such work is inefficient and demoralizing. In the first place it discourages children and oppresses them with a sense of failure. But the essential thing is to establish in the child the habit of success, which can only be accomplished by giving him a finishable

job. Lessons must be so simple that they can be accomplished, and so interesting that they awaken enthusiasm. In the second place, going too fast with children begets superficial habits and inaccurate knowledge. This is one of the sins laid at the door of the American school by European observers. We must therefore avoid the fault of undertaking too much as well as the fault of doing too little. According to this study, the best results are obtained by schools which read in the several grades the amount indicated in the following table:—

Average Amount read by the Best Schools

(Unit = 1000 words)

Grade . . .	1	2	3	4	5	6	7	8	Total
Amount . .	29	62	120	200	200	168	90	107	976

7. *Dramatization.* — The possibilities of dramatization have only recently been realized to any considerable extent by the elementary school. The main purpose of the exercise is to put meaning into words. Meaning consists of thought and feeling. The theatre is a very potent factor in human society. From the dramatic dance of the savage to the Shakespearean play we have an illustration of how man tries to realize and express the infinite variety

of human emotion, and the evolution of motive into action. The child's play is a "continuous performance" in the theatrical sense. With such an instinct in possession of the infant soul, why should the school longer neglect to employ so useful an agent in the service of education?

Particularly useful is dramatization in a cosmopolitan city like New York, where the schools are crowded with foreigners and the children of foreigners. My own district is not known as a community of foreigners; yet ten per cent of our children are Italians, and possibly twenty-five per cent are Hebrews of foreign parentage. The spoken and written symbols that are thrust upon children in such profusion have in many cases little or no content. The teacher vainly imagines that words "mean what they say." This is never the case. Her words carry her mature experience. The books children read convey meaning packed into them by an adult writer. To the child, especially the child from a foreign or uncultured home, words have often but little significance. Convince yourself of this by asking a pupil to explain the meaning of words found in his books. One was asked to tell what were the "Oxford Provisions." He replied: "Salt, beef, ham,

bacon.” Another was told to explain what a city of refuge was for. He said: “When a man had been murdered accidentally, he might jump up and run to it.” I picked out eight words at random from a page of Longfellow’s “Miles Standish” which a class had read, and asked for their meaning. About one pupil in ten could answer.

When children “act out” a story, the words give up their real meaning. This is true whether the subject be a nursery rhyme, a fairy tale, a play, or an episode in history. I have been encouraging dramatic exercises in my district for some time; but these returns show a far more extensive use of them than I had suspected. Considerably *more than half* of all the classes have had dramatization. In one school, out of forty-seven teachers reporting, all but three have dramatized. Below will be found a selection of some of the pieces in each grade that have been dramatized in these schools. The report does not include the dramatic reading that is insisted on in the regular reading hour, nor does it include dramatic reading done by teacher or children in reading to the class.

There is one serious danger against which a note of warning should be issued. The tendency in school

dramatics is to become theatrical; to put the emphasis on showy effects; to dress children up in fancy costumes; to exhibit them before the public. School work of any kind degenerates and loses its educational value as soon as it is used primarily for show purposes. This is true of dramatics no less than of other exercises. Therefore, keep the work simple. Confine it chiefly to the class room; and remember that its primary purpose is to make vivid the meaning of what is read.

From the reports submitted, the following selection of pieces dramatized in the several grades is made.

First Grade

The Wind and the Sun; The Fox and the Grapes; The Three Goats; Little Boy Blue; The Three Bears; The Three Little Pigs; The Straw, the Coal, and the Bean; The Butterfly; The Organ Grinder; The Hare and the Tortoise; The Dog and his Shadow; The Lion and the Mouse; The Thrifty Squirrels; Little Jack Horner; Henny Penny; Puss in Boots; The Dove and the Bee; Five Little Chickadees; Jonnicake; Old Mother Hubbard; Lambikin; Jack and Jill; Simple Simon; Tom Thumb; The Beehive.

Second Grade

The Wolf and the Seven Kids; Chicken Little; Jack and the Beanstalk; The Little Red Hen; Billy Binks; How Mrs. White Hen Helped Rose; Little Shepherdess; Drowning of Mr. Leghorn; Starving of Mrs. Leghorn; Little Red Riding Hood; Sleeping Apple; Three Billy Goats Gruff; The Owl and the Grasshopper; The Pied Piper; The Elves and the Shoemaker; The Boy who cried Wolf; The Pigs and the Giant; Little Gingerbread Boy; Sleeping Beauty; The Little Pine Tree; Washington and the Cherry Tree; The Brahmin, the Tiger, and the Jackal; Hansel and Gretel; Clytie; Little Match Girl.

Third Grade

Pinocchio; The Magic Swan; Hiawatha; The Crow and the Pitcher; A Visit from the Months; What Mrs. Squirrel Thinks; The Ant and the Mouse; How to get Breakfast; The Spider and the Fly; Two Little Kittens; The Blind Man and the Lame Man; The Town Musicians; The Golden Touch; Cinderella; Tillie's Christmas; The Captain's Daughter; Pandora's Box; The Leak in the Dike; William Tell; The First Woodpecker; The Frog and the Ox; How

the World came to an End; The Fisherman and His Wife.

Fourth Grade

The Honest Woodman; The Town Mouse and the Country Mouse; The Miller of the Dee; The Bell of Atri; Rip Van Winkle; The Book of Thanks; Supper at the Mill; The Boy Who Tried; The Brave Drummer Boy; How Andy saved the Train; The Emperor and the Abbot; The Stolen Child; The Cat and the Mouse as Partners; How Jack O'Lantern Frightened away the Indian; The Coming of Hudson; Settlement of Manhattan; Daniel Webster's First Case; The Story of Joseph; How I turned the Grindstone.

Fifth Grade

The Fox and the Horse; Christian and Apollyon; Christmas at the Cratchits; The Buying of Manhattan; Selection from As You Like It; Selection from A Midsummer-Night's Dream; Columbus; The Jackal and the Partridge; How the Thrushes crossed the Sea; Surrender of New Amsterdam; Saving of John Smith's Life by Pocahontas; Salem Witchcraft; The Pilgrims; The Snake Skin and the Bullets; Braddock's Defeat.

Sixth Grade

King of the Golden River; Moses at the Fair; Departure of the *Clermont*; Horatius at the Bridge; Arnold the Traitor; The Miraculous Pitcher; Betsy Ross; Nathan Hale; Boston Massacre; John Brown; Barbara Frietchie.

Seventh Grade

Christmas Carol; Courtship of Miles Standish.

Eighth Grade

Julius Cæsar; Merchant of Venice; Evangeline; The Bird's Christmas Carol; Lady of the Lake.

CHAPTER VII

A READING TEST

THE test is an indispensable part of teaching. Any effort or device which attempts to ascertain whether a pupil has done his work, or how well he has done it, is a test. It may be formal or informal. It may be a part of the recitation, or distinct from it. It may be applied by the teacher, the principal, or the superintendent. However, and whenever, and by whomsoever used, the test is necessary if standard and proficiency are to be secured and maintained. That modern doctrine of education which puts all the emphasis upon "process" and "effort" and "interest" and "good intentions" to the neglect of results is vicious and false and the bane of the profession.

Granted that reading should be tested, how is it to be done? Manifestly we shall have to divide the problem into several parts and consider each separately. We have already discussed reading as a mechanical process and reading as literature. The

different standards to be applied to these two phases have also been explained under the head of "class criticism." (See page 154.)

1. *Analysis of the Problem.* — In New York City the board of superintendents requires principals to rate the reading efficiency of pupils who are about to graduate from an elementary school under the following items:—

- (1) Amount of literature read in class during the year now closing.
- (2) Power to interpret the matter so read.
- (3) Ability to read aloud accurately and intelligently new reading matter.
- (4) Power to give understandingly the substance of a paragraph after a single reading.
- (5) Skill in the use of a dictionary.

(1) *Amount.* — This heading calls for the quantitative measurement of reading as discussed in Chapter VI.

In the high school tests of the Regents in New York and in college entrance tests, quantity is an important part of the examination. The student must read a certain number of specified books and show that he has mastered their contents. The reason for these demands is that reading is treated

chiefly as literature and only incidentally as a mode of expression. In secondary and higher institutions "elocution" is under the ban, and thought content is practically all there is of reading.

(2) *Interpretation*. — Here is the first attempt to measure the power of the pupil. Again the demand is concerned with content. "Interpret" may, however, be taken to mean intelligent vocal rendition. Sometimes the best interpretation of a poem or other literary masterpiece is adequate oral expression. But interpretation includes also explanation of words and phrases, of figures and allusions. A pupil must be reasonably proficient in this phase of reading before he can be regarded satisfactory.

(3) *Reading Aloud*. — I wonder whether there is enough oral reading in the schools of all grades. Young people sing, and play on musical instruments of various kinds, and dance, and play cards; but how many are able to entertain a company by an acceptable reading or recitation? Elsewhere in this volume reasons are given why silent reading alone is insufficient to bring out all there is of meaning, especially meaning which consists of feeling. Therefore a reading test, to be adequate, must require vocal utterance. Only in this way may we know the

quality of voice, the accuracy and effectiveness of pronunciation and enunciation. Only thus shall we discover errors due to bad habits and inherited defects of speech.

The requirement of the board of superintendents not only calls for reading aloud, but specifies that the test shall be on new matter. In this way we determine the pupil's power. We learn something of his skill in pronunciation, of the extent of his vocabulary, and of the extent to which reading has become an efficient instrument for the acquisition of knowledge and pleasure.

(4) *The Abstract.* — The next part of the test calls for the substance of a paragraph in the language of the pupil after a single reading. Here we have an entirely new point of view. The pupil no longer deals with individual words and sentences, but goes on to a larger unity, which he is obliged to grasp at a glance, and to express in condensed form. The making of abstracts is the very essence of what we call "study." It is therefore exceedingly valuable. It is a sure cure for the abominable habit of memorizing the words of texts in history, geography, and other lessons. Pupils in all grades should be frequently required to make oral abstracts of reading matter, — not merely

of paragraphs, but of entire lessons. I sometimes ask a pupil in the upper grammar grades to give me the story of Evangeline, of Julius Cæsar, or some other literary work in ten sentences. After the fourth year these abstracts should be written and may be assigned as home-work. Great pains should be taken to have the exercises *abstracts* rather than *extracts*. They should be brief. They should be carefully scrutinized by the teacher. In this way we shall have a guarantee that the pupil has studied his lesson; for it is impossible to write a good abstract without studying with care what is to be reduced in bulk.

(5) *The Dictionary Habit*. — A part of the equipment to which every pupil above the fourth grade is entitled is a habit of going to the dictionary when a doubt arises as to the meaning or pronunciation of a word. Hence skill in the use of the dictionary is a proper subject of inquiry in a reading test.

2. *A High Standard*. — Only the best reading is good enough for promotion; therefore a high standard of proficiency will be necessary. The writer has adopted in his district the standard of ninety per cent as a condition for a satisfactory rating of a class or school in reading. That is, ninety per cent of all

the pupils examined must read with adequate fluency and expression the matter used for the test.

Lowell has said of reading: "I should be half inclined to say that any reading is better than none, allaying the crudeness of the statement by the Yankee proverb, which tells us that, though 'all deacons are good, there's odds on deacons.'" The truth of this dictum we may admit, but it does not follow that we shall be justified in promoting large numbers of children who are deficient in reading; because if we do, these pupils will certainly come to grief sooner or later in their attempt to pass through the grades. Being unable to read with ease, they have difficulty in mastering their books, and thus they become discouraged and drop out of school.

3. *Every Pupil Tested.* — A supervisor who aims to ascertain the efficiency of a class in reading must apply his test to every pupil. A great deal of humbug is covered up by the opposite procedure. A superintendent may go into a class and ask the teacher to show how well the children can read. She calls upon John, and Mary, and Susan, and three or four others, all star pupils, and the superintendent rubs his hands, compliments the teacher, and goes away satisfied that reading is well taught in that class. If

he had insisted upon hearing every member of the class, he might have discovered that fifty per cent could not read at all with any adequate degree of success; and perhaps even the star pupils who performed so well were trained by another teacher or school. Every pupil should know what he is alleged to have been taught. We ask the teacher to name the pages or lessons that have been mastered by the class. From among the lessons thus indicated, the material for the test is taken. If the failures are more than ten per cent, the class is deficient in reading.

Such a test brings home to a teacher two things she must never forget; namely, first, that she is responsible for the progress of every pupil in her class; and, secondly, that she must drill and drill and drill until what she has taught is a real and permanent possession of the pupil.

4. *Relative Value of Reading.* — English and number are admittedly the most important subjects in the elementary curriculum. If a pupil be deficient in these two, he should not be promoted; for he will be unable to do the work of the next grade. Reading is an important part of English. How much should it count in a scheme of promotion by points?

On the basis of a hundred, I would put the following valuation on mere ability to read with fluency and intelligence, leaving out of consideration spelling, memorizing, grammar, and composition: first year, 20 points; second to sixth years inclusive, 10 points; seventh and eighth years, 5 points.

The total value of English (including penmanship) in the elementary school for promotion purposes I should put at 45 points in all grades.

CHAPTER VIII

THE HYGIENE OF READING

1. *Sufficient Light.* — The first requisite for reading with ease and comfort is a sufficient amount of light from the right source. Authorities on school hygiene unite in demanding that the amount of transparent glass surface admitting light shall be from one-fifth to one-fourth of the floor surface of the room. A standard schoolroom, 30×25 ft., should therefore contain not less than 150 sq. ft. of lighting surface. This should furnish to the pupil seated in the most unfavorable situation an illumination of at least fifty candle metres (that is, the light of fifty standard candles at a distance of one metre). Various devices may have to be resorted to in order to secure the proper diffusion of light, such as factory ribbed glass, Luxfer prisms, shades, etc. The source of light should be from the left, or left and rear. In spite of the dicta of the doctors, there are still many ill-lighted schoolrooms. Intelligent teachers can do much to remedy these conditions by bringing them to the attention of responsible authorities. In most cases these

unhygienic rooms are in old buildings inherited by the present administration from a preceding generation. Unless some one lodges a complaint, serious defects may continue indefinitely.

But if schools fail in their duty in such things, what shall we say of the average home, where the pupil does his reading and studying? Many parents are ignorant of the laws of hygiene, and others who know better are careless. And hence children are allowed to sit in dark corners to read and write and are never definitely instructed as to the proper direction for the source of light. Recently the writer visited the home of a boy who attends one of the public high schools. The lad's desk is so situated that the gaslight falls over his right shoulder. In this unhygienic situation the boy has prepared all his home lessons since the day he was admitted to the primary school. A suggestion from a thoughtful teacher would have taught him early to change the position of his desk.

A day or two ago a girl was observed in an elevated train on her way home from school. The car was crowded and poorly lighted. But the girl was doubled over, intent upon her home-work. Although she could scarcely see the figures she was writing, she

never took her eyes off the paper for an instant during the entire journey from Sixty-Seventh Street to Tremont. A girl old enough to attend the Normal College ought to have better instruction in personal hygiene.

A contemplation of home conditions in the poor quarters of a city should warn teachers against the imposition of an unreasonable amount of home-work. In thousands of families the entire household occupies a single living-room, which may also be the kitchen and bedroom. I know of a case where a family of thirteen persons and four live chickens lived in one room. What chance has a child amid such surroundings to do home-work requiring close attention? To ameliorate the circumstances of such unfortunate children, study-rooms have been opened in some of our evening recreation centres, where children may do their home-work in comfort under the supervision of a teacher. Strange things are sometimes accidentally discovered in study-rooms. One child was found recently whose home-work consisted of the writing of the following sentence one thousand times: "I must obey my teacher." School hygiene is in a primitive state as long as we find teachers who are guilty of such crimes against childhood.

2. *Tinge and Surface of Paper.* — Black ink on white paper is the most effective combination for reading. No other contrast is so great as this. A flat, unreflecting surface is necessary for school books. Glossy paper reflects light regularly and is therefore injurious to the eye. In order to produce good half-tone illustrations, the publisher often uses calendered¹ paper for the entire book. Line drawings are more satisfactory than half-tones, because they may be printed on a dull surface; but they are more expensive because they require the services of an artist. The use of calendered paper, therefore, is always in the interest of economy in printing, but not in reading.

The writing on the school blackboard requires careful attention. After the writing has been erased with a board-rubber, small particles of chalk still cling to the surface and give it a gray color, thus reducing the contrast upon which the legibility of the writing depends. Therefore, at least once a day blackboards should be washed. The writing should be large enough to be clearly visible from the last row of seats. The reflection of light is usually such that from certain angles it is impossible to read the writing.

¹ *Calender* is a machine consisting of two cylinders between which paper is run to give it a smooth, glossy surface.

In such cases matter to be read or copied should be placed where all the children can see it, or pupils should be asked to change their seats. I have examined the eyes of a large number of school children, and have found scores of cases of defective vision, where the defect was unsuspected by either the pupil himself or by his parents and teachers. Many such unfortunates are seated by careless teachers in the rear of the room where they are unable to read what they are asked to copy, *e.g.*, lists of spelling words, problems in arithmetic, and the like. In this way they learn wrong forms, or fail to understand what is explained; then they fall behind in their studies, lose interest in school, and presently are known as "bad" boys or girls.

So important is the proper use of the blackboard, that in the New York Training Schools the student receives special instruction and drill in the matter, and on the blank filled out by principals for the renewal of temporary licenses, "skill in blackboard work" is one of the items reported on. The recent introduction of arm-movement writing in all the grades and schools of New York has enormously improved the blackboard writing of teachers, and has thus been a great boon to children.

3. *Illustrations.* — Anything that helps to make the meaning clear tends to reduce the time and effort required in reading. Illustrations, therefore, are an important phase of the hygiene of reading. School readers of the present leave little to be desired in the matter of pictures. Their publishers spend vast sums to secure artists of skill and reputation. The result is that the little ones look upon the best of these books with affectionate regard. Such an appeal to interest eliminates the drudgery from reading and doubles the efficiency of the teaching.

School histories are illuminated by portraits of the principal actors in the drama, by facsimiles of important documents, by literary sources, by diagrams and maps. All these help to put meaning into the narrative and thus to reduce the labor required to master the content of the book.

Illustrative material in geography has become very valuable. Text-books are filled with diagrams, maps, and pictures of landscape features, buildings, and people. The stereoscope, museum, excursion, and picture library all help to make the learning easy and effective.

Even tables of contents and indexes are related to economy of reading. These give one a bird's-eye

view of the contents of a book and enable one to turn with a minimum of effort to any desired portion of the text. Not only should every book be provided with one or both of these helps, but the teacher should make it a part of his business to train children in the proper use of them. Everywhere and always it is our duty to reduce the friction of the machine and thus to increase the available energy devoted to the educational output.

4. *Length of Line.* — On the proper length of line for rapidity and ease of reading there is considerable variation among authorities. The reason for this is that the question is one largely of opinion, no conclusive experimentation having been made as yet. Weber¹ requires a maximum line of 150 mm. and a minimum of 100 mm. He recommends that school books be printed in lines of 140–150 mm., or nearly six inches. Cohn² thinks a line should never be more than 90–110 mm. (4.3 in.). Huey³ indorses Dearborn's demand for a line of 75–80 mm., but gives

¹ A. Weber, *Ueber die Augenuntersuchungen in den höhern Schulen zu Darmstadt. Referat und Memorial, erstattet der grossherzoge Ministerial = Abtheilung für Gesundheitspflege.* März, 1881.

² *The Hygiene of the Eye*, Hermann Cohn, Midland Educational Co., Birmingham, England, 1886, p. 206.

³ *The Psychology and Pedagogy of Reading*, Edmund B. Huey, The Macmillan Co., 1908, p. 412.

his own preference for 60–80 mm. The news column of the *New York Times* is 57 mm. wide. The columns of the *Outlook* are 60 mm. in width; of *Scribner's Magazine*, the same; of the *Cosmopolitan*, 64 mm.; of *McClure's Magazine*, 66 mm.; of the *Atlantic Monthly*, 59 mm. The average length of line in certain well-known school readers extensively used in New York is as follows:—

Primer A, part 1, 32 mm.

Primer A, part 2, 45.5 mm.

Primer B, p. 1, 67.5 mm.

Primer B, p. 38, 63 mm.

Primer C, 35–110 mm.

Primer D, 30–65 mm.

The following quotation from Dearborn¹ shows that many factors in the reading process are related to the length of line, and that the mere *ipse dixit* of an author is not sufficient as a guide to practice:—

“The length of the text-lines is mainly important in its effect upon the formation of motor habits. The rate of reading depends in part on the ease with which a regular rhythmical movement is established. The peculiarities of this movement are, as noted, two,—a succession of the same number of pauses per line, and a distribution of the duration of the pauses. . . .

¹ *Op. cit.*, p. 131.

Those lines are best suited to rapid reading which give opportunity for a wide span of attention, but which are not of such length that the peripheral perceptions from the end or beginning of a line are too inexact and confused to be of value in determining the general character of a large part of the line. If the lines are too long, the incidental concurrent impression of words lying in the lines above and below . . . are not infrequently distracting. . . . Uniformity of length of line is a requisite for the formation of motor habits of reaction."

On the score of uniformity of length, most of the primers in use offend. In many cases the lines are interrupted by illustrations, so that the little reader is much troubled to follow the devious path of the printed story. In Primer A the length is exceedingly irregular; in Primer B the same is the case; in Primer C the lines vary according to the length of the verses; while Primer D has a fairly regular length on any given page, but varies from 30 to 65 mm. in different parts of the book.

The daily newspaper, having a column of about 60 mm., is therefore the model for the length of line of a school primer. The makers of newspapers have adapted themselves to the reaction of their readers;

while the publishers of books, in the interest of beauty or their own convenience, continue to disregard the standards of hygiene. Of the primers cited above, A's lines are too short by half ; B's are right ; C's are too irregular ; and D's are too short in the beginning and just right at the end.

5. *Size of Type*. — Huey¹ quotes with approval the following requirements set down in Shaw's *School Hygiene*:² —

For the first year the size of type should be at least 2.6 mm. and the width of leading 4.5 mm., as shown in this example : —

Who has seen the Wind ?

Neither I nor you.

But when the leaves hang trembling,
The wind is passing through.

Who has seen the wind ?

Neither you nor I ;

But when the trees bow down their
heads,
The wind is passing by.

¹ *Op. cit.*, p. 416.

² *School Hygiene*, Edward R. Shaw, The Macmillan Co., 1901, p. 178.

For the second and third years, the letters should not be smaller than 2 mm., with leading of 4 mm. Some of the more carefully made books for the second and third years are printed in letters of this size, as shown in the following example:—

Where the bee sucks, there suck I;
In the cowslip's bell I lie;
There I couch when owls do cry.
On the bat's back I do fly
After summer merrily.

Merrily, merrily, shall I live now,
Under the blossom that hangs on the
bough!

For the fourth year the letters should be at least 1.8 mm., with leading 3.6 mm., as follows:—

Oh, for boyhood's time of June,
Crowding years in one brief moon,
When all things I heard or saw,
Me, their master, waited for.
I was rich in flowers and trees,
Humming-birds and honey-bees;
For my sport the squirrel played,
Plied the snouted mole his spade.

The primers already cited in this chapter have the following sizes of type and leading:—

Size of Type in Five Primers

	TYPE mm.	LEADING mm.
Primer A, pt. 1 . .	3.5	7
Primer A, pt. 2 . .	2.5	5-7
Primer B	3	6
Primer C	3.5	7.5
Primer D	3	5

From this table it appears that in size of type and width of spacing these books more than satisfy the minimum requirements of hygiene. But there are many school books in use which fall short of the standards. A popular text-book on grammar, for instance, prints most of its reading matter in type 1.5 mm. in height, with 2.5 mm. spacing, while many subordinate paragraphs have 1 mm. letters and 2 mm. spacing. A well-known book on school hygiene prints its index in 1 mm. type, with 1.5 mm. spacing. A certain pedagogical magazine recently started is printed on calendered paper throughout, with 1.5 mm. type for the major portion and 1 mm. type for the rest. It is evident that the only way to safeguard the eyes of children is for boards of education to exclude from the schools every book that fails to

comply with the standards of hygiene. "In future," says Cohn, "I would have all school authorities, with measuring rule in hand, place upon the *Index librorum prohibitorum* all school books which do not conform to the following measurements: The height of the smallest *n* must be at least 1.5 mm., the least width between the lines must be 2.5 mm., the least thickness of the *n* must be .25 mm., the shortest distance between the letters .75 mm., the greatest length of text-line 100 mm., and the number of letters on a line must not exceed 60."¹

6. *Eye-strain*. — An act of vision is a very complicated psychological and physiological process. The crystalline lens is an elastic body, and would, if left to itself, assume a shape more nearly spherical than the one it actually has in the normal eye. There is a muscle attached to the margin of the lens called the *zonula*, which, by contracting, keeps the lens flattened for seeing distant objects. The tension of the *zonula* is diminished by the *ciliary* or *accommodation* muscle. The lens, being elastic, assumes a more spherical form whenever the *ciliary* muscle contracts, and thus enables the eye to view objects that are near. It is evident, then, that in reading and writing the *ciliary* muscle is kept tense all the while; consequently, when

¹*Op. cit.*, p. 206.

one engages in these exercises for many consecutive hours, the muscle becomes exhausted and we have the condition known as eye-strain. This mechanism of accommodation is the main source of injury to the

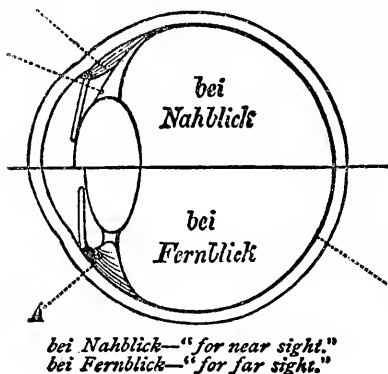


FIG. 10.

From Cohn's *The Hygiene of the Eye*.

youthful eye. In Fig. 10, a section of the eye is shown with the lens accommodated for near vision in the upper half and for far vision in the lower half.

(1) *Diseases of the Eye*. — Rays of light falling upon the eye

in repose, without any exertion of the accommodation muscle, are normally refracted so as to be focussed exactly upon the retina. The eye is then said to be *emmetropic* (*emmetros* = of the right measure; *ops* = the eye). If the diameter of the eye is too short, so that the rays are focussed behind the retina, the case is called *hypermetropic* or *hyperopic* (*hyper* = beyond). If the diameter of the eye is too long, so that the rays are focussed in front of the retina,

then the patient is *myopic* (*muein* = to blink). Both these diseases may be caused either by defects of refraction or defects in the shape of the eye. There is a third disease due to imperfect refraction called *astigmatism*. In this case the focus is on the retina, but is in the form of a line instead of a point. The most important of these troubles, so far as the schools are concerned, is myopia, both because it is a disease induced by too close and too long application to school work (possibly insufficient light), and because "a short-sighted eye is a diseased eye; . . . progressive short sight is in every case ominous of evil for the future; . . . and not unfrequently at the age of 50 or 60, if not much earlier, the power of sight, either from detachment of the retina, or from hemorrhage, or lastly, from atrophy and degeneration of the yellow spot, is irretrievably lost."¹

What is meant by calling myopia a "school disease" is shown by the following table giving the frequency of myopia among 10,060 pupils in the several kinds of schools in which they were registered:—

"5 village schools	1.4	per cent
20 elementary schools	6.7	per cent
2 higher schools for girls	7.7	per cent

¹ Quoted from Donders by H. Cohn, *The Hygiene of the Eye*, p. 49.

2 middle schools	10.3	per cent
2 real schools	19.7	per cent
2 gymnasias	26.2 ¹	per cent

(2) *The School Doctor*. — In 1908 Gulick and Ayres reported 70 cities in the United States outside of Massachusetts in which medical inspection of schools is provided. In Massachusetts there were at that time 32 cities and 321 towns where such inspection was in operation.² Practically every nation of Europe has put into operation some form of inspection; and even Chile and the Argentine Republic have laws requiring physicians to visit the schools. The Japanese system of medical inspection extends all over the empire and reaches the most remote rural community. By reason of the general adoption of this beneficent reform and the great improvement in school architecture, the teacher is relieved of some of his responsibility in the matter of school hygiene. In New York, for instance, the doctor systematically examines at least a portion of the children in each school once a year; and the medical records are entered upon the pupil's card, which in case of transfer he carries from school to school. When the doctor

¹ Cohn, *op. cit.*, p. 57.

² *Medical Inspection of Schools*, Gulick and Ayres, N. Y. Charities Publication Committee, 1908, p. 27.

discovers a defect of vision, the pupil receives an official notice to his parents ; and the school nurse follows up the case until the child has glasses or such other treatment as may be required. In spite of all these agencies, however, one still may see, in almost any class, myopic children. So it is necessary to keep on urging teachers, as all works on school hygiene do urge, to watch the eyes of their children. Near-sight can easily be detected by merely watching a child while he reads or writes. Other defects will be revealed by Snellen's type test, with which every teacher should be familiar. As soon as a difficulty is discovered, the parents should be notified ; for delay not only may interfere with a child's progress, but may be dangerous.

(3) *Home-study*. — Many teachers overestimate the value of home-study. Herbart said long ago, "The teacher who assigns home-work with a view to saving labor in school miscalculates utterly ; his work will soon have become all the harder." The principal reason for home-study, as I see it, is that the pupil is trained thereby in self-dependence. Home-study also teaches children the virtue of industry and application. A certain teacher known to the writer assigned twenty-eight map questions from a well-known

geography for a home lesson. One of the questions was, "What is the most northern point of the European mainland?" A little girl in the class was puzzled by this question because she had been so poorly instructed that she did not know proximity to the north pole is determined partly by parallels of latitude on the map. She therefore examined all the points near the top of the map, but could not find a name attached to any of the points. She appealed to her mother, and learned for the first time that you must follow lines of latitude in order to answer the given question. She then discovered herself that North Cape is the point referred to. In numberless cases children ruin their eyes and break their little hearts in a vain effort to study unreasonable home lessons.

All home-work should be forbidden during the first three years of school. Home-work in arithmetic and grammar should be forbidden below the sixth year. The maximum time for home-study should be as follows: fourth and fifth years, *half an hour*; sixth year, *one hour*; seventh and eighth years, *one and a half hours*; high school, *two hours*.

7. *Literary Style*. — It is evident that ease and rapidity of reading are dependent to no small degree

upon the choice and arrangement of words. Hence the hygiene of reading is related to literary style. Scientific writers are among the chief offenders in creating needless difficulties for the reader. They are so much engrossed by their facts and theories that they take no time to cultivate the art of expression. Dr. Minot of Harvard does not overstate the case in the following paragraph: "Do we not all know articles which are bungled in form and weakened by prolixity? Surely the heads of all laboratories should insist by example and precept that all the workers under their influence write clearly and briefly — for if an author fails to show respect for his own scientific work, how can he expect others to respect it? . . . Rivarol in his famous prize essay said, 'ce que n'est pas clair, n'est pas Français' — but we might say what is not true, is not English. By its wealth of synonyms and its logical construction the English language is preëminently adapted to the exact statement of scientific truth. . . . Good thinking is the blastema of good style, therefore our learning will never appear good if our learned articles are written badly."¹

¹ Charles Sedgwick Minot, Vice-presidential Address delivered before the Section of Physiology and Experimental Medicine of the American Association for the Advancement of Science, at Minneapolis, December 29, 1910. Published in *Science*, 1911.

In his essay on "The Philosophy of Style," Herbert Spencer lays down the principle that the rules of rhetoric are merely so many devices for "economizing the reader's or hearer's attention." "When we condemn writing that is wordy," he says, "or confused, or intricate — when we praise this style as easy, and blame that as fatiguing, we consciously or unconsciously assume this desideratum as our standard of judgment. Regarding language as an apparatus of symbols for the conveyance of thought, we may say that, as in a mechanical apparatus, the more simple and the better arranged its parts, the greater will be the effect produced. In either case, whatever force is absorbed by the machine is deducted from the result. . . . The more time and attention it takes to receive and understand each sentence, the less time and attention can be given to the contained idea; and the less vividly will that idea be conceived."¹

A large percentage of school books are written in an obscure or difficult style that acts as a hindrance to thought rather than an instrument of it. It is well known that in the last two years of our elementary school, children prefer Shakespeare to any

¹ *Philosophy of Style*, by Herbert Spencer, N. Y., D. Appleton & Co., 1895, p. 11.

paraphrase of him. Mathematical problems are frequently enigmas merely because the child does not comprehend the language in which the problems are stated. School histories befuddle the child's brain by an obscure style of writing. The following paragraph is taken from a well-known history written for children from ten to fourteen years of age: "The blockade was now so effectual that the prices of all imported goods in the Confederate States were fabulous. Led by the enormous profits of a successful voyage, foreign merchants were constantly seeking to run the gantlet. Their swift steamers, making no smoke, long, narrow, low, and of a mud color, occasionally escaped the vigilance of the Federal squadron." This is a style that an adult might use in addressing mature and well-bred people. But the average pupil of the fifth grade will get very little content from "fabulous prices," "running the gantlet," and "the vigilance of the Federal squadron."

Other illustrations of difficult and easy writing will readily occur to the reader. Here are two specimens: —

Difficult

"The Hollander still displays this naïveté in the expression of his feelings, though almost always, too,

he exhibits a curious, deep reserve, thinking more than he says (though he can be frank enough), as we often discover by the lightning illumination of a remark blurted out in passion. See how he expresses his ideal in naming his house to-day, showing exactly how much, chiefly of comfort, it means for him. His are not the regrets of an exile, such as carry our own suburban householder back with some longing to his childhood, when he names one house of a row in a Brixton or Stoke Newington street 'Tiverton,' 'Dunkeld,' 'Killiecrankie.'''¹

Easy

"And every year he became more beautiful to look at, so that all those who dwelt in the village were filled with wonder, for, while they were swarthy and black-haired, he was white and delicate as sawn ivory, and his curls were like the rings of the daffodil. His lips, also, were like the petals of a red flower, and his eyes were like violets by a river of pure water, and his body like the narcissus of a field where the mower comes not." ²

¹ *Home Life in Holland*, by D. S. Meldrum, The Macmillan Co., N. Y., 1911, p. 13.

² *The Star Child*, by Oscar Wilde, Thomas B. Mosher, Portland, Me.

CHAPTER IX

BIBLIOGRAPHY

THE following authorities are cited or quoted in the text of this volume: —

1. ARNOLD, SARAH LOUISE, *Learning to Read*, Silver, Burdett & Co., 1899.
2. BAIN, ALEXANDER, *The Senses and the Intellect*, 4th ed.
3. BAKER, THOMAS O., *The Action Primer*, American Book Co.
4. BAGLEY, W. C., *The Educative Process*, The Macmillan Co., 1905.
5. BARNES, EARL, *Studies in Education*, 1896, p. 15.
6. BRYANT, SARA CONE, *How to Tell Stories to Children*, Houghton, Mifflin & Co.
7. ——— *Stories to Tell to Children*, Houghton, Mifflin & Co., 1907.
8. BURK, FREDERIC, in *Pedagogical Seminary*, Vol. 6, p. 5, on Physical Basis of Association.
9. CARPENTER, BAKER AND SCOTT, *The Teaching of English*, Longmans, Green, & Co., 1903.
10. CHUBB, PERCIVAL, *The Teaching of English*, The Macmillan Co., 1909.

11. CLARK, S. H., *How to Read Aloud*, published by the author, Chicago University, 1897.
12. ——— *How to Teach Reading in the Public Schools*, Scott, Foresman & Co., Chicago, 1898.
13. COHN, HERMANN, *The Hygiene of the Eye*, Midland Educational Co., London and Birmingham, 1886.
14. COLVIN, S. S., *The Learning Process*, The Macmillan Co., 1911.
15. CORSON, HIRAM, *The Aims of Literary Study*, The Macmillan Co., 1895.
16. DEARBORN, WALTER F., *The Psychology of Reading*, The Science Press, N. Y., 1906.
17. DEXTER AND GARLICK, *Psychology in the Schoolroom*, Longmans, Green, & Co., 1898.
18. DEWY, JOHN, *The School and Society*, University of Chicago Press, 1899.
19. DODGE, RAYMOND, Visual Perception during Eye Movement, *Psychological Review*, Vol. 7, p. 456.
20. FULTON AND TRUEBLOOD, *Practical Elements of Elocution*, Ginn & Co., Boston.
21. GULICK AND AYRES, *Medical Inspection of Schools*, N. Y. Charities Publication Committee, 1908.
22. HALL, G. STANLEY, *How to Teach Reading*, D. C. Heath & Co., 1886.
23. HINSHELWOOD, PROFESSOR, in *Lancet*, February 8, 1902, Aphasia.
24. HORNBYE, *Horn-Book*, London, 1622.
25. HUEY, EDMUND B., *The Psychology and Pedagogy of Reading*, The Macmillan Co., 1908.

26. HUXLEY, THOMAS, *Man's Place in Nature*.
27. JAMES, WILLIAM, *The Principles of Psychology*, Holt & Co., 1893, Vol. 1, p. 554.
28. JUDD, CHARLES H., *Genetic Psychology for Teachers*, D. Appleton & Co., 1903.
29. KIRKPATRICK, E. A., on Children's Reading, in *The Northwestern Monthly*, Dec., 1898, and Jan. and Mar., 1899, Lincoln, Neb.
30. ——— *Fundamentals of Child Study*, The Macmillan Co., 1903.
31. LADD AND WOODWORTH, *Elements of Physiological Psychology*, Scribner's Sons, 1911.
32. LADD, GEORGE TRUMBULL, *Elements of Physiological Psychology*, Scribner's Sons, 1901.
33. MACEWEN, SIR WILLIAM, in *British Medical Journal*, Vol. 2, 1888, on Aphasia.
34. MCMURRY, CHARLES, *Special Method in Reading for the Grades*, The Macmillan Co., 1908.
35. ——— *Special Method in the Reading of English Classics*, The Macmillan Co., 1903.
36. MELDRUM, D. S., *Home Life in Holland*, The Macmillan Co., 1911.
37. MILLER, HUGH, *My Schools and Schoolmates*.
38. MILTON, JOHN, *Tractate on Education*.
39. MINOT, CHARLES SEDGWICK, Vice-Presidential Address, *Science*, 1911.
40. O'SHEA, M. V., *Linguistic Development and Education*, The Macmillan Co., 1907.
41. REEDER, R. R., *Historical Development of School*

224 THE PRINCIPLES OF TEACHING READING

- Readers and of Method in Teaching Reading, *Columbia University Contributions to Philosophy, Psychology, and Education*, Vol. 8, no. 2, The Macmillan Co., 1900.
42. RIBOT, TH., *The Evolution of General Ideas*, The Open Court Publishing Co., 1899.
 43. ROMANES, GEORGE J., *Mental Evolution in Animals*, D. Appleton & Co., 1893.
 44. SHAW, EDWARD R., *School Hygiene*, The Macmillan Co., 1901.
 45. SHIMER, EDGAR DUBS, *The Progressive Road to Reading*, Teachers' Manual, Silver, Burdett & Co., 1909, by Dr. Edgar Dubs Shimer, Dr. William L. Ettinger, and Georgine Burchill.
 46. SMITH, T. S., *American Journal of Psychology*, July, 1896.
 47. SMYTHE, E. LOUISE, *Old Time Stories*, Werner & Co., Chicago, 1896.
 48. SPENCER, HERBERT, *Philosophy of Style*, D. Appleton & Co., N. Y., 1895.
 49. STEBBINS, GENEVIEVE, *Delsarte System of Expression*, N. Y., 1889.
 50. STOUT, G. F., *Manual of Psychology*, Hinds & Noble, N. Y., 1899.
 51. THOMSON, W. HANNA, *Brain and Personality*, Dodd, Mead & Co., 1907.
 52. TRACY, FREDERICK, *The Psychology of Childhood*, D. C. Heath & Co., 1896.
 53. VOSTROVSKY, CLARA, *Study of Children's Reading Tastes*, *Pedagogical Seminary*, Vol. 6, p. 523.

54. ——— A Study of Children's Stories in *Studies in Education*, by Earl Barnes, 1896, p. 15.
55. WEBER, A., *Ueber die Augenuntersuchungen in der höheren Schulen zu Darmstadt. Referat und Memorial, erstattet der grossherzoge Ministerial-Abtheilung für Gesundheitspflege*, März, 1881.
56. WHARTON, WILLIAM PARKER, *Experimental Study of Ideational Types*, Thesis for Doctorate in Philosophy, New York University, 1911.
57. WISSLER, CLARK, *Interests of Children in Reading, Pedagogical Seminary*, Vol. 5, p. 523.
58. WILDE, OSCAR, *The Star Child*, Thomas B. Mosher, Portland, Me.
59. ——— *Intentions*, Thomas B. Mosher, Portland, Me., 1904.
60. WYCHE, RICHARD THOMAS, *Some Great Stories and How to Tell Them*, Newson & Co., N. Y., 1910.

CHAPTER X

TOPICS FOR DISCUSSION

1. (a) Describe three kinds of exercises which should be used in teaching children to read before a reading book is placed into their hands. Give a psychological reason for each exercise.

(b) Give, with reasons, specific cautions regarding the use of phonic work in the first half year.

2. (a) Describe what you regard as a good phonetic method of teaching reading. Give a reason for each feature of the method described.

(b) Describe and criticise the reading material found in some first reader now in use. Mention the book.

3. "The owls were talking to each other. They were talking in their native *language* and laughing at each other.

"Hiawatha heard the hooting of the owls and he was afraid. 'What is that?' he cried in terror.

"Nokomis laughed and said, 'That is but the owl and the *owlet* in the pine trees. They are talking

to each other in their native language. The old owl is scolding, and the owlet is laughing at the moon.' "

Assuming that the italicized words have not occurred previously in the reading of the class, how would you lead children in the second year of school, (a) to pronounce and to recognize these words; (b) to understand their meaning?

4. Describe, in detail, proper methods of correcting these habitual faults in pronunciation: (a) *dem* for *them*; (b) *wite* for *white*.

5. (a) Give ten phonetic elements that should be taught early in the first year of school. Give three considerations governing your choice.

(b) Outline in three steps an exercise on the phonogram *in*.

6. (a) In a second-year class, what preparation should be made for the reading of the poem printed on page 131 (mention three particulars)?

(b) Suggest three aids, aside from repetition, in the memorizing of this song.

(c) In an eighth-year class, what points with regard to the versification of this song may properly be developed?

7. Give in detail an exercise, suitable for the first year, on the sound "sk," giving in parallel columns,

(a) what the teacher is to do, and (b) what the pupils are to do.

8. It has been proposed that in teaching beginners to read, the teacher should begin by using the following sentence: "Three little pigs went for a walk." Criticise this procedure, giving reasons.

9. (a) State, with reasons, the principles that should guide you in selecting the words to be taught to a class of beginners in reading.

(b) State, with reasons, your method of teaching these words.

(c) Name, with reasons, the letters whose sounds you should teach first, and describe your method of teaching these sounds.

10. (a) Regarding a course of lessons in reading, in one of the early years of the elementary school, briefly indicate, with illustrations, two effective ways of leading pupils to understand the meaning of new words.

(b) What considerations would guide you in selecting passages to be memorized, and how would you lead pupils to commit to memory such passages?

(c) Give four directions, such as might be helpful to a young teacher, for guiding pupils to read with proper expression.

(d) State in detail what manual work you deem it profitable to introduce in connection with the study of some specified selection.

11. Describe in outline a reading lesson in the third or the seventh year of the elementary school, giving reasons for each exercise, and indicating practicable correlations with other subjects.

12. How may children in a sixth-year grade be taught the meaning of new words? Mention a variety of ways and tell, with reasons, under what circumstances each way may properly be used. Illustrate.

13. With regard to methods of teaching the meaning and use of words in the seventh and eighth years, state under five heads the points that should be brought out in a conference of the teachers of the grades mentioned. Illustrate.

14. Treating each word separately, tell how you would impress on pupils the spelling of the following words: *separate*, *business*, *led*, *benefited*, *pronunciation*.

15. (a) Describe and illustrate two ways in which a teacher may properly lead the children in grade 3A to understand the meaning of new words. (In illustrating use two kinds or types of words.)

(b) State in general what words should be selected for such study.

16. (a) State the principles which should guide a teacher in selecting words for a spelling list.

(b) How should homonyms be taught? Illustrate.

(c) How would you lead children to discriminate between the words *hope*, *expect*, *suppose*?

17. Show the grade to which each of the following is adapted and the particular purpose that each serves: Grimm's "Fairy Tales"; Arnold's "Sohrab and Rustum"; Alcott's "Little Women"; Pyle's "Story of King Arthur and His Knights"; Ruskin's "King of the Golden River"; Stevenson's "The Wind"; Eggleston's "Stories of Great Americans."

18. What is the main purpose of (1) oral reading? (2) silent reading?

19. What are the essential characteristics of supplementary reading for the primary grades?

20. What is the purpose of emphasis? Give two methods of emphasis.

21. What relation does a child's experience or environment bear to his ability to read a given selection? Illustrate by means of some well-known selection.

22. Discuss the value of calling on a child to give in his own words the thought of a passage that has just been read.

23. Mark with proper diacritics: *caprice*, *rough*, *legal*, *desert* (verb), *furlough*.

24. Contrast analytic and synthetic methods of teaching a child to read. Illustrate.

25. Show in what respects learning to speak and learning to read are alike, and wherein the two are unlike.

26. Discuss the question of lip movement in reading, giving your opinion, with reasons, as to its value or hindrance.

27. Show the value of dramatization as a school exercise, and point out some of its dangers.

28. Are diacritical marks desirable or necessary in the beginnings of reading? Give reasons.

29. Give an outline of the principal topics properly treated under the head of the hygiene of reading.

30. What is the educational value of reading as a school subject? Specify its several functions.

31. Discuss the relation and relative value of impression and expression in education.

32. What is the significance of gesture in relation to human speech? Illustrate.

33. Define and give the use of hornbook, sampler, battledore, in connection with reading.

34. Characterize in detail a good reading lesson in a second-year grade.

35. Explain a good method of stimulating interest in good but difficult subject-matter in a fourth-year class.

36. Discuss the value of reading *to* children in lower and higher grades.

37. What is the value of story-telling in the primary grades? Specify some of the qualities of a well-told story.

INDEX

- Abell, Adelaide M., 66.
 Abstract of reading, 194.
 Accommodation in vision, 212.
 Adaptations of reading matter,
 97.
 Aim, definite, in reading, 140.
 Alexia, 42.
 Allusions, teaching of, 138.
 Alphabet, our, 81.
 Alphabetic method, 115.
 forbidden in Prussia, 117.
 Amount read, by pupils, 171, 192.
 to pupils, 178.
 by best schools, 184.
 Analysis, of reading test, 192.
 of words, 78.
 Analytic method of reading, 118.
 Aphasias, 40-55.
 motor, 42.
 Apraxias, 43.
 Arabs, their gestures, 4.
 Arnold, Sarah Louise, 83.
 Association, laws of, 16-20.
 reading a form of, 14.
 voluntary, 20.
 physical basis of, 38.
 Astigmatism, 213.
 Asymbolia, 49.
 Babbling stage of language, 5-7.
 Bagley, W. C., 30.
 Bain, Alexander, 45.
 Baker, Thomas O., 71.
 Barnes, Earl, 87.
 Basedow, 116.
 Battledore, 113.
 Beginnings of reading, 120.
 a device for, 127.
 Blackboard reading, 203.
 Blend, the, 83, 121, 126.
 Books used in reading, by chil-
 dren, 172.
 to children, 178.
 Booth, Edwin, 146.
 Brain, function, localization of,
 40.
 how a word gets recorded on,
 47.
 Broca's Convolution, 43, 48, 55.
 Browning, Incident of the
 French Camp, 144.
 Brumbaugh, Martin G., 82.
 Bryant, Sara Cone, 163.
 Buno, 116.
 Burk, Frederic, 39.
 Calendered paper, 202.
 Carpenter, Baker, and Scott,
 143, 144.
 Cattell, Dr. J. McKeen, viii.
 Chattering stage of language, 8.
 Children, kind of words used
 by them, 9.
 number of words used by
 them, 11.
 Chubb, Percival, 94, 98, 99,
 104, 134, 140, 141, 150, 164.
 Ciliary muscle, 211.
 Clark, S. H., 148, 150.
 Climax, 154.
 Cohn, Hermann, 205, 211, 212,
 213, 214.
 College entrance board, 108.
 requirements, 105.
 Colvin, S. S., 29, 30.
 Comenius, 117, 119.

- Congruity, 19.
 Content, method of imparting, 128.
 Contrast, 154.
 Corson, Hiram, 145.
 Criticism of class reading, 154, 157.
 Dearborn, Walter F., viii, 59-62, 205-206.
 Definitions of reading terms, 120.
 Delsarte, system of expression, 4.
 Device for beginners in reading, 127.
 Dewey, John, 1, 32.
 Dexter and Garlick, 14, 17.
 Diacritical marks, 81.
 Dictionary habit, 195.
 Diseases of the eye, 212.
 Doctor, the school, 214.
 Dodge, Raymond, 61.
 Ear, literature for the, 143.
 Economy, mental, in silent reading, 28.
 Education, half-brained, 56.
Educational Review, viii.
 Eliot, Charles W., 100.
 Emerson, R. W., *The Mountain and the Squirrel*, 131.
 Emmetropic, 212.
 Emotion in reading, 153.
 Emotional stage of language, 2.
 Emphasis, 152.
 Ends of reading, 77.
 Errors, correcting, 126, 154, 157.
 Expression, 141.
 and impression, 129.
 Expressive impulse, 1.
 Eye-movements in reading, 60-65.
 Figures of speech, teaching of, 138.
 Fiske, Thomas S., 108.
 Fissure of Rolando, 40.
 of Sylvius, 40.
 Frenchmen, their gestures, 4.
 Frequency, in association, 18.
 Fulton and Trueblood, 148.
 Gesture, importance of, 3.
 Goethe, 31.
 Grammar, figures, and allusions, 138.
 Grouping, as an element in reading, 151.
 Gulick and Ayres, 214.
 Hall, G. Stanley, 86, 95-98, 115-116, 130.
 Harris, Benjamin, and the *New England Primer*, 100.
 Henry VIII, primer, 110.
 High school reading, 105, 149.
 Hinshelwood, Professor, 49.
 History of reading, 109, 120.
 Holmes, Oliver Wendell, *Chambered Nautilus*, 138.
 Old Ironsides, 143.
 Home study, 215.
 Horn-book, 113.
 Hornbye's horn-book, 113.
 Huey, Edmund B., 25, 59, 62, 66, 67, 68, 205.
 Huxley, Thomas, 13.
 Hypermetropic, 212.
 Ickelsamer, 109, 116.
 Ideational types, 30.
 Illustration of the process of learning to read, 21.
 influence of Comenius, 119.
 in relation to hygiene, 204.
 Imitative impulse, 1.
 Impression and expression, 129.
 total, in reading, 135.
 Information, reading for, 101.
 Inspiration, reading for, 102.

- Institutes of Oratory, Quintilian, 117.
- Interpretation, as an element in reading, 193.
- Interest in reading, 19, 87, 89, 92, 93.
- Jacotot, 118.
- James, William, 15.
- Judd, Charles H., 64.
- K.'s diary, 6-11.
- Kirkpatrick, E. A., 8, 11, 12, 90, 91.
- Ladd and Woodworth, viii, 43, 48, 49, 54, 55, 56, 58.
- Language, comprehension precedes use, 6.
- stages of, 2.
- visual, 12.
- Laws of association, 18.
- Left-and-right-handedness, 53-55.
- Letters recognized in groups, 62-64.
- Light, sufficient, in reading, 199.
- Line, length of, 205.
- Lip-movers in reading, 34, 35, 66, 67.
- Literary style in relation to hygiene, 216.
- Literature for the ear, 143-145.
- reading as, 103.
- Localization of brain function, 40.
- Longfellow, The Arrow and the Song, 160.
- Lucy Gray, 132.
- Lyrics, how to teach, 130.
- MacDougall, Robert, viii, 35.
- MacEwen, Sir William, 51, 52.
- Machines, reading, 119.
- Mallery, on gesture, 5.
- Material, reading, history of, 109.
- Meaning of words, 51, 66-68, 84.
- Meldrum, D. S., 220.
- Memorizing, 159.
- Mental economy in silent reading, 28.
- Methods of teaching reading, 109-163.
- history of, 109-120.
- A-B-C, 115.
- phonic, 116.
- word-building, 117.
- write-read, 117.
- analytic, 118.
- imparting content, 128.
- Miller, Cyrus C., 114.
- Miller, Hugh, 102.
- Milton, John, 96, 141.
- Minot, Charles S., 217.
- Mountain, The, and the Squirrel, 131.
- Muscular movements in reading, 59.
- Myopia, a school disease, 213.
- New England Primer*, 110.
- Orbis Pictus*, illustrated school book, 119.
- O'Shea, M. V., 25, 33, 34.
- Paper, tinge and surface, 202.
- Pestalozzi, 117.
- Phonetic analysis, 78, 81.
- synthesis, 83.
- reading, 121.
- word, 121.
- Phonic and phonetic, 120.
- Phonogram defined, 121.
- Physical basis of association, 38.
- of a word, 44.
- of the meaning of words, 51.

- Physiology of reading, 38-69,
 73-76.
 Plato, describes write-read
 method, 117.
 Play impulse, 2.
 Poetry, lyric, 130.
 narrative, 131.
 Posture in reading, 68.
 Primary reading, mechanics of,
 77.
 as literature, 85.
 lyrics, 130.
 narrative poems, 131.
Primer, the New England, 110,
 111.
 Primers, length of line, 206.
 size of type, 210.
 Principles of reading, 70-76.
 Print or script in the beginning,
 80.
 Pronunciation, 81.
 Psychology of reading, 1-37,
 70-73.
 Pupils, reading to, 158.

 Quality, quantity, and time, 180.
 Quantitative study of reading,
 165.
 Quintilian, describes write-read
 method, 117.

 Rapidity in reading, 33.
 Ratichius, 117.
 Reading teacher, successful, a
 rare treasure, v.
 psychology of, 1.
 signs of, 14, 15.
 a form of association, 14, 16-20.
 illustration of the process, 21-
 25.
 silent, 25.
 mental economy in, 28.
 from printed to spoken word,
 thence to idea, 30.
 as self-expression, 32.
 rapidity in, 33.
 lip-movers in, 59.
 muscular movements in, 59.
 eye-movements in, 60-65.
 posture in, 68.
 end of, 77.
 twofold aspect of, 78.
 relation to other studies, 78.
 primary, mechanics of, 77.
 primary, as literature, 85.
 what? 85, 104.
 sex differences in, 88, 90.
 grammar, mechanics of, 99.
 supplementary, 100.
 grammar, as literature, 103.
 for college entrance, 105.
 history of material, 109.
 machines, 119.
 beginnings of, 120, 127.
 content, methods of impart-
 ing, 128.
 impression and expression, 129.
 total impression, 135.
 word study, 136.
 study of figures and allu-
 sions, 138.
 definite aim in, 140.
 as expression, 141.
 in high school, 149.
 criticism of, 154.
 standard of a good recitation
 in, 155.
 to pupils, 158, 177, 178.
 quantitative study of, 165.
 total amount, 171.
 relation of quantity, quality,
 and time, 181.
 amount read by best schools,
 184.
 test of, 191.
 aloud, 193.
 relative value of, 197.
 hygiene of, 199-220.
 Recency in association, 18.

- Recognition of speaking vocabulary, 77.
 Reeder, R. R., 112, 114.
 Representation of phonetic elements, 81.
 Ribot, Th., 5.
 Rochow, 109.
 Romanes, George J., 67.
 Sampler, 114.
 School doctor, 214.
 Scribner's Sons, Charles, viii.
 Script or print in the beginning, 80.
 Seguin, 54.
 Sentences, 151.
 Shakespeare, *Where the Bee Sucks*, 131.
 Macbeth, 139.
 Hamlet, 145-147.
 reading aloud of, 150.
 Shaw, Edward R., 208.
 Shimer, Edgar Dubs, viii, 26, 30, 31, 32.
 Sight words, defined, 121.
 principles governing selection of, 121.
 teaching of, 123.
 Silent reading, 25.
 Size of type in primers, 210.
 Smith, T. S., 64.
 Social impulse, 1.
 Sounds, principles governing selection of, 122.
 teaching of, 125.
 Spacing and size of type, 208.
 Speller, Noah Webster's, 112.
 Spelling, 85.
 Spencer, Herbert, 218.
 Stages of infantile language, 2.
 Standard of a good recitation in reading, 155, 195.
 Stebbins, Genevieve, 4.
 Story-telling, 162.
 Stout, G. F., 46, 47.
 Study, quantitative, of reading, 165.
 Style, literary, in relation to hygiene, 216.
 Subordination in reading, 151.
 Supplementary reading, 100.
 Surface of paper, 202.
 Synthesis of sounds, 83.
 Talking stage of language, 8.
 Taste, reading to cultivate, 103.
 Taylor, Sir Henry, on reading Shakespeare aloud, 150.
 Test of reading, 191.
 every pupil, 196.
 Thomson, William H., 40, 49, 55, 57.
 Time in relation to quality and quantity, 181.
 Tinge of paper, 202.
 Total amount read, 171.
 impression in reading, 135.
 Tracy, Frederick, 2, 9, 10.
 Transition in reading, 152.
 Twofold aspect of reading, 77.
 Tyler, on gesture, 5.
 Type, size of, and spacing, 208, 210.
 Unit of measure, in quantitative study of reading, 166.
 Value, relative, of reading, 197.
 Visual language, 12, 13.
 Vividness of impression in association, 18.
 Vocabularies, children's, 9, 10, 77.
 Voluntary association, 20.
 Vostrovsky, Clara, 87.
 Vulpius, 39.
 Wallace, Alfred Russell, 2.
 Ward, Edward G., 82.
 Weber, A., 205.

- Webster, Noah, his speller, 112.
Weisze, Christian Felix, 110.
Wernicke, 42.
Wharton, William Parker, 30.
What to read, 85-97.
Wilde, Oscar, 145, 220.
Wissler, Clark, 89.
Word study, 136.
Words, kind used by children, 9.
 number used by children, 11.
 number taught first year, 170.
 physical basis of, 44.
 how recorded on the brain,
 47.
 physical basis of meaning of,
 51.
Wordsworth, *We are Seven*, 13.
 Lucy Gray, 132.
Write-read method, 117.
Wyche, Richard Thomas, 164.

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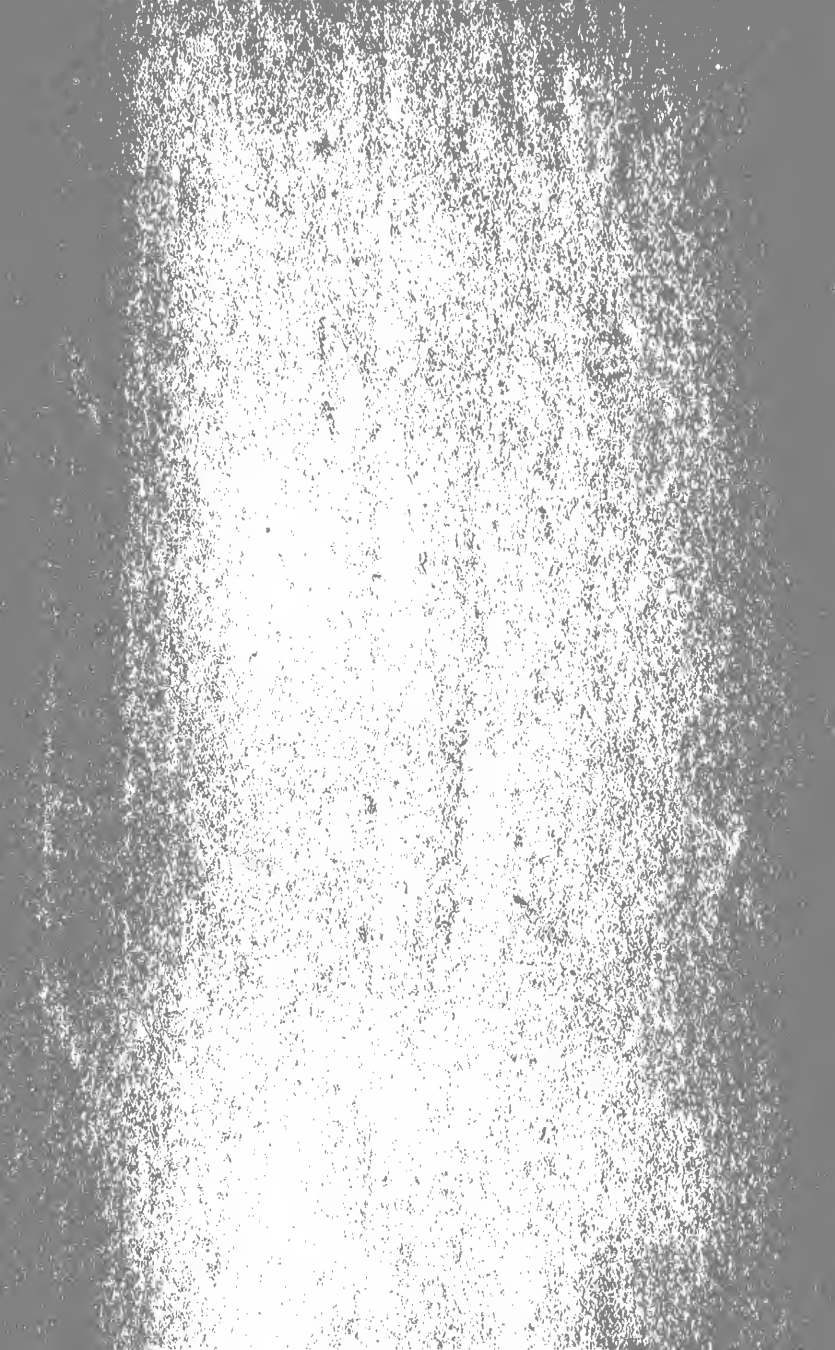
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